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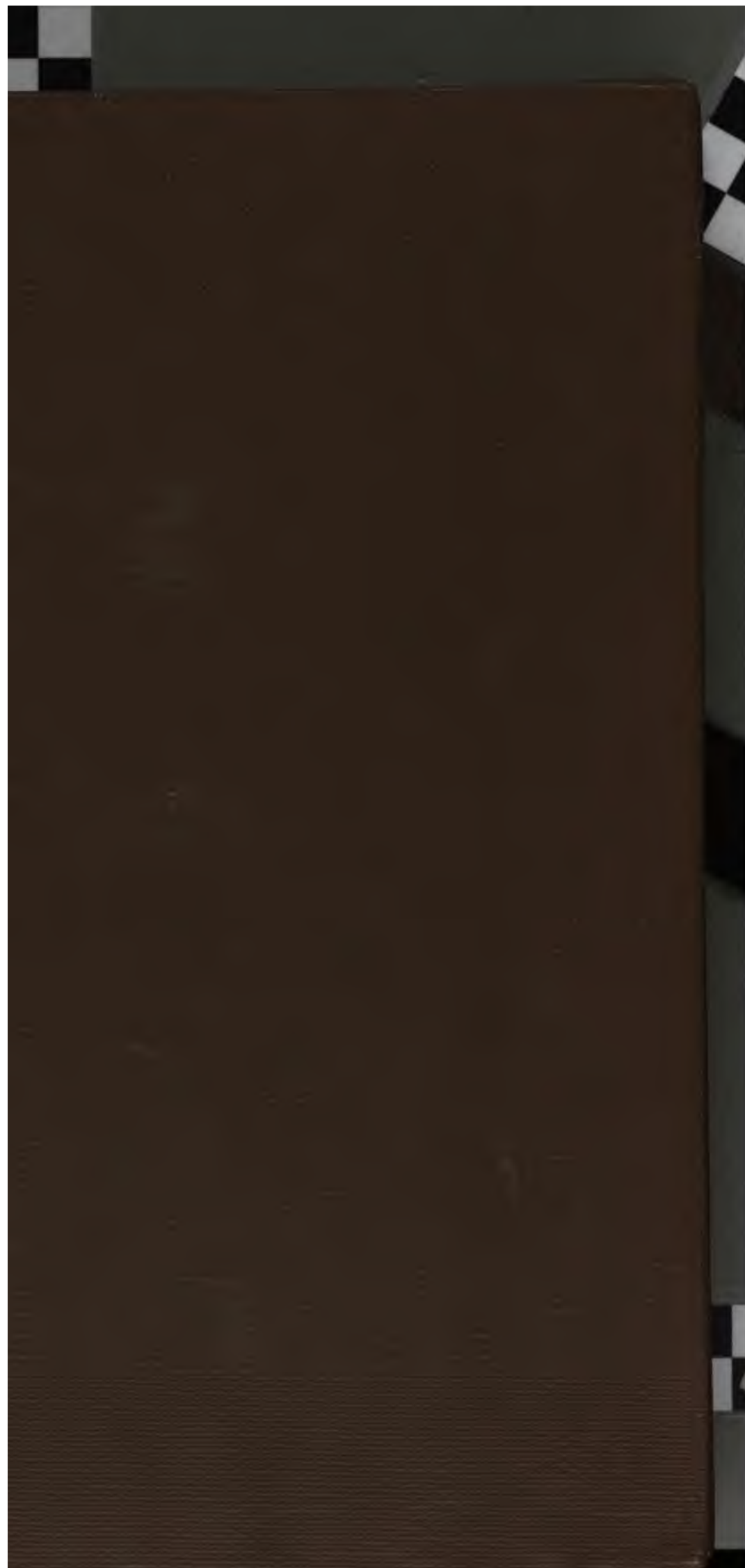
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Chemical Trade Journal
Supplement, February 3rd, 1894.

THE
CHEMICAL TRADE
JOURNAL:

A WEEKLY NEWSPAPER DEVOTED TO

The Commercial Aspect of the Chemical and Allied Industries.

EDITED BY

GEORGE E. DAVIS.

FORMERLY ONE OF HER MAJESTY'S INSPECTORS OF ALKALI WORKS.
CHEMICAL ENGINEER AND CONSULTING CHEMIST.

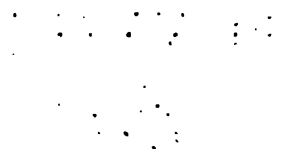
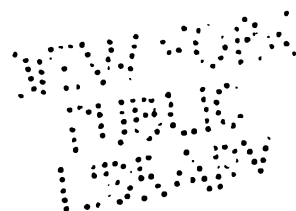
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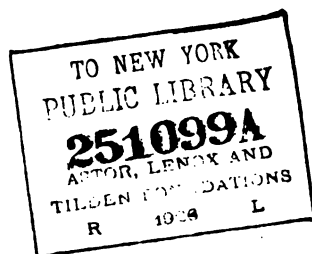
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LATE ADVERTISEMENTS.

WANTED.—A small experimental Vacuum Pan and Condenser.—Send particulars of size and price to W. J. Fraser and Co., chemical engineers, Commercial-road, E., London, E.

INVERTED STEAM PUMP, with 7-inch Steam Cylinder, 5-inch Ram, 6-inch Stroke. Equal to new. £30.—City Machinery Agency, 29, Corporation-street, Manchester.

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DAVIS BROS., 32, Blackfriars Street, MANCHESTER.

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CURRENT TOPICS.

THE OLD COMPLAINT.

THE frequent references made to the danger to which the public health is exposed owing to the insanitary conditions which exist in certain localities, is apt to bring on the heads of those who so persistently advert to such matters, the anything but euphonious *soubriquet* of "croaker."

The approaching completion of the ship canal has served as a peg on which many discourses have been hung concerning the dangers which may arise if this and that is not done, but for once the croakers have the satisfaction of knowing they have not croaked too soon.

Statements concerning the state of the ship canal docks have been made in the daily press, but the fact of houses ten minutes' walk from the docks being troubled with the smell (to say nothing of those in the more immediate neighbourhood,) when expressed in forcible language, is generally read with an inward comment that a "fact" is often a very respectable fraction of an unvarnished prevarication. Unfortunately, in consequence, statements which are based on individual experience and the calculations of a cool judgement are received with as much incredulity as the exaggerated effusions of an over-heated imagination.

When mentioning last week the desirability of active steps being taken in regard to cholera and the inspection of ports, we little thought that that which was desirable would be so speedily changed into a positive necessity.

The satisfactory precautions which the London Sanitary Authority puts into force to-day, are to be found elsewhere in this issue, but they come nearly a week too late in one sense, for on Sunday last a fireman on board a vessel, which came from Nantes into the Tyne, died, from what was certified by the doctor to the port sanitary authority to be cholera.

The persistent croaking of the frogs, according to Æsop, eventually brought them a heron which devoured them, but we trust it cannot be traced to the croaking of the croakers in this case that this malignant disease has outwitted the watchful and been the first to gain possession of the field. Possibly the incident will, of itself, act as a stimulant, and lead to increased caution at other ports. One thing is certain: we do not want to hear of any more cases of a similar nature, especially when the continuance of a good and normal water supply during the next few months is not as yet definitely assured in different parts of the country.

TROUBLED WATERS.

Almost at the time of our going to press a meeting is being held in London, convened for the purpose of allowing the Coalowners' Federation to intimate to the Miners' Federation a request for a reduction in wages of 25 per cent. Nothing definite can result from the meeting, as the Miners' Federation is powerless to decide anything until a special meeting of the Federation has been held, at which the

working representatives of the miners in the different coal-fields can ventilate their personal opinions. It is almost a foregone conclusion that the reduction will be strenuously opposed.

After the lengthy discussions and fruitless conferences of last year one would think there was nothing left to ventilate; but the position of a combination of some three hundred thousand men backed by nearly half a million of money is a strong one, and the reason why labour can not only oppose, but even dictate to capital is no longer such a difficult riddle to solve.

Nevertheless, it is a bit of an eye-opener when those who depend for their livelihood upon the existence of capital, can tell the owners of the same that they ought to be able to combine so as to maintain prices at the old level, and thereby preclude the possibility of wages being affected by the alterations of a fluctuating market. The fact that combination amongst coal owners has once succeeded in such a measured degree as to ultimately culminate in a strike, is a point which just now seems to have been forgotten. Nature with an abnormally dry Spring has threatened us with scarcity of water. Now, human nature menaces us with a possible dearth of coal. Are the times out of joint? Well, the oil-can is certainly wanted somewhere. In fact a little "hot-neck-grease" would perhaps be more beneficial if heat and friction are to prevail.

TIPS FOR TRADERS.

THE SODA, rock-salt, pitch making, and coal mining industries are growing in Elbeland, but are experiencing the drawbacks attending the lack of better transport and export facilities.

THE TURKISH CUSTOMS HOUSE AUTHORITIES are rather capricious in the exercise of their powers, and traders are warned that frequently apparently harmless articles are confiscated by the authorities on political or other grounds. Recently a pictorial advertisement for *candles* was stopped because it represented Pompeian women in classical costume. *Malt vinegar* was also stopped as being unfit for human consumption. Analysis shewed it to be of good quality. Patent medicines generally, seem to be captured on account of being drugs, the ingredients of which are unknown. *Yellow aniline colours* were confiscated because they were found to crackle or deflagrate when sprinkled on glowing embers, and were, therefore, considered explosives. *Potassium chlorate* shipped for medical use was seized and confiscated on similar grounds.

LEAD, TIN, AND IRON ores are plentiful in Japan. In 1890 some 2,000 tons of antimony were produced.

SULPHUR is also found in considerable quantities in the same country. In 1890 the production of prepared sulphur was 16,810 tons. Manganese is also worked.

PETROLEUM LAMPS, made with metal reservoirs, are wanted in Tananarivo, Madagascar, in preference to those with glass holders; their use is extending daily.

THE SUGAR INDUSTRY in this same island does not improve; on the contrary, it shows a falling off.

ENGLISH COAL is practically no longer taken to Batoum; in 1892 less than one thousand tons were imported. It has been superseded by coal from the Caucasian fields.

SALT is obtained in considerable quantities from the salt marshes in South Russia, most of which belong to the Government, who sub-let them to private persons, claiming a certain percentage of the production. Last year 900,000,000 lbs. were produced, an increase of 61,200,000 lbs. over 1891.

TARIFF CHANGES.

There are from time to time many alterations in the customs regulations abroad, which it is as well for those trading in chemicals, paints,

oils, and raw materials, to be acquainted with. The following are some of the most recent changes of interest to the foregoing:—

PHOSPHORITES in the raw state, unground, are admitted into Russia duty free.

TRADE CATALOGUES have a duty of 25 francs per quintal levied upon them under the customs tariff of Switzerland (quintal = 220.4 lbs. franc = 9.8 d.).

CORD GREASE, a mixture of graphite and animal and mineral oils, is dutiable at 20% *ad val.* under the new tariff of the U.S.A. Customs.

POSTAL CHANGES.

Circulars printed or lithographed in characters resembling those of the typewriter, or produced by means of the mimeograph or other mechanical process from type-written originals, have hitherto been liable to the letter rate of postage, the department being unable to distinguish such documents from ordinary letters written with the typewriter.

In future circulars of this description will be admitted to the privilege of the book rate of postage, provided that they are posted by being handed in at the counter of the chief or branch offices in London, Edinburgh, or Dublin, the head or branch offices of a post town, or the district offices in London and Liverpool, and that at least 20 copies precisely identical are posted at the same time. If the copies be posted otherwise than by being handed in at the counter of any of the before-named post-offices, or if less than 20 copies be posted at the same time, the circulars will be charged as letters.

Information has been received from the Italian Post Office to the effect that all packets containing bound books of a saleable value are subject in Italy to Customs duty.

In order to avoid inconvenience, such packets should in future be sent to Italy exclusively by parcel post.

EXPORTS OF PETROLEUM FROM U.S.A.

THE Chief of the Bureau of Statistics, Mr. S. G. Brock, gives the exports of petroleum and petroleum products from the United States for the month of April, 1893, and during the ten months ending April 30th, 1893, as follows:—The total value of the shipments for April was £536,738. as against £771,257. in April, 1892; and for the ten months ending April 30th, 1893, £6,770,689., as opposed to £7,509,262. for same period ending April 30th, 1892. The shipments were as follows:—

CRUDE PETROLEUM.		Gallons.
Total for April, 1893		5,412,191
" " 1892		8,854,225
Total for 10 months ending April 30th, 1893 ..		93,094,996
" " " 1892 ..		89,706,186
NAPHTHAS.		
Total for April, 1893		193,192
" " 1892		360,544
Total for 10 months ending April 30th, 1893 ..		14,889,552
" " " 1892 ..		11,306,238
ILLUMINATING.		
Total for April, 1893		45,629,301
" " 1892		49,804,777
Total for 10 months ending April 30th, 1893 ..		500,020,322
" " " 1892 ..		462,294,731
LUBRICATING.		
Total for April, 1893		2,265,352
" " 1892		3,753,104
Total for 10 months ending April 30th, 1893 ..		27,520,560
" " " 1892 ..		29,425,575
RESIDUUM.		
Total for April, 1893		90,384
" " 1892		78,918
Total for 10 months ending April 30th, 1893 ..		280,602
" " " 1892 ..		427,056

THE BEET-SUGAR INDUSTRY.—The Hököping Beet-Sugar Company, West Sweden, has declared a dividend of 6 per cent. for last year.—During last year 34,940 tons of beets were dealt with at the Lund Beet Sugar Factory, the cost being equal to £1 6s. 8d. per metrical ton. The company has been in existence for ten years, and has paid an average dividend of 18½ per cent.

Legal Intelligence.

EDINBURGH COURT OF SESSIONS.—OUTER HOUSE.

(Before Lord Wellwood and a Jury.)

JOHNSTONE v. GRANT.

AN INTERESTING CASE.

This case, which was heard in the above court last week, arose out of an action brought by Alexander Johnstone, 38, Menzies Place, Edinburgh, against Sir Arthur Grant, Bart., of Monymusk, Aberdeenshire, for damages to the extent of £1,000. for alleged slander, the defender having, it is said, represented that the pursuer, a lecturer in chemistry in Queen Margaret College, Glasgow, while lecturing in Aberdeenshire for the County Council, on the geology of soils, had been guilty of blasphemy. The defender says the words he used were a fair criticism of the lectures. The following are the remarks which the pursuer complains of:—

"Again, the other day, I was listening to one of those gentlemen sent round by the County Council to instruct poor farmers on what they were supposed to know about things connected with the land and cattle, and all the rest of it, and this gentleman, paid at the public expense, used his lectures chiefly, so far as I can see, for the promotion and for the preaching of a kind of blasphemous rationalistic doctrine, trying to upset the Bible, and to upset things which old-fashioned people like myself had believed in for some little while, and which they hoped to believe in for a good while yet. I think that if our Churches, instead of quarrelling so much, would league and band themselves together to counteract such men and such views as I have just touched upon, it would be very much better than the present state of things."

The pursuer, in reply to Mr. Strachan, said that he had held appointments as teacher of science at Blair Lodge School, the Heriot-Watt College, the University of Edinburgh, and to the Glasgow College. As instructor in geology to the County Council of Aberdeen, he was to get £200. for the course of lectures, and expenses were to be added to that. He commenced in November, and delivered the lectures during the whole winter at different places in Aberdeenshire. The first notice he received of the speech made by the defender was through a colleague, a lecturer on natural history, about 17th March, 1892. The speech was reported in the *Aberdeen Evening Express* of 12th March. Witness did not take it at first as applying to him, but wrote the defender asking whether, in the speech which was made at the opening by the defender of a Free Church bazaar, he referred to him. From the terms of the speech witness thought the defender referred to him. If the reference was to him, witness asked the defender what justification he had to offer for the statements made. The defender replied that the remarks made on the 12th March "referred to what I had heard myself, and to what I have heard from others. I expect those in authority will take due notice at their own discretion." Witness wrote again to the defender asking what justification he had to offer, and the defender answered—"Fit what cap you like to your own head; but, if you are wise, do not kick against the pricks." Witness understood that the speech meant that he was not fulfilling the duties which he was paid to fulfil; and, second, of blasphemy; and, third, of being an Atheist, or trying to upset the belief of the people in the Bible. The speech was calculated to injure witness as a lecturer. The County Council did not renew witness's engagement, but it was renewed with every one of the other lecturers. Afterwards, he was appointed to the lectureship of chemistry in Queen Margaret College, Glasgow, in the beginning of October last year. He finished the engagement at the end of March this year, and at present he was doing nothing. He had a little private tuition just now.

Cross-examined by Mr. Jameson—Q. There is no person's name mentioned, nor any time or place where these views are stated to have been made. What was it made you suppose that it referred to you alone out of the four lecturers employed by the County Council of Aberdeen?—A. Sir Arthur Grant, fully a week before, attended my lecture at Monymusk. Witness had said nothing at Monymusk to justify the statements. Q. Was not the reason this, that in that lecture at Monymusk you had made some remarks about the Creator and the constitution of the earth, which you had interpreted offensively?—A. Nothing that I said could possibly be interpreted offensively. Q. Were you not lecturing about phosphates among other things, and remarking about the deficiency in the soil of Aberdeenshire in phosphates?—A. Yes. Q. And in doing so did you say that the Creator had made a mistake in not either putting more phosphates into the soil there, or making some of the neighbouring hills a mountain of phosphates so as to save the expense of importing them from foreign parts?—A. No. I did not use these words. Q. Did you use any words to that effect?—A. I said nothing about the deficiency of the phosphates in the rocks of Aberdeenshire. I referred to the world as a whole, and that the primary rocks all the world over contained too little phosphorus, and that it was a pity from the farmers' point of

view that so little phosphorus had been put into the rocks at the beginning. I said nothing about the Creator making a mistake. At the Kemnay lecture there was an interruption by Mr. Burnet. Witness had finished his lecture and said that in the next he would give an account of the creation of the world, which would differ a little from the account of the creation as given in Genesis. Q. Did you not say that your next lecture would be on the creation of the world, not according to the account in the first chapter of Genesis, as science proved that the account given there was not to be accepted?—A. I do not admit the statement. Q. Did you not say you would give an account which would be more interesting than that in the first chapter of Genesis, and what is more, it is true?—A. I do not admit that, but I might have said it would be more interesting; and it would be true, as we had the evidence of the rocks to go by. Q. Meaning thereby that the account in Genesis was not true?—A. I said in reply to Mr. Burnet that I was not there to defend the first chapter of Genesis. Mr. Burnet's words were, "I protest against this, as every word in the Bible is true," and I said it was not my business to defend in this connection the Bible. My duty was to teach geology as I understood it; but I did not agree with him that it was antagonistic to the teaching of the Bible. I did not mention generally the Bible account of the creation. Q. What was the necessity of introducing the Mosaic account of the creation or any observation of this kind at all in the lecture?—A. I had a syllabus to follow, and in it the creation of the world was stated. The origin of rocks, minerals, and fossils was referred to in the syllabus. The origin of rocks was the creation of the world. Witness thought he might have been injudicious in arguing that point with Mr. Burnet. Witness did not blaspheme. Witness remembered illustrating a lecture and pointing to the destructive working of the sea on cliffs, and pointing to the illustration and saying—"Here was an old abbey being destroyed by the waves, and I said it might have been worse." He meant that it might have been worse if lives had been lost. Witness did not refer sneeringly to the Church. He had not been refused any situation on account of the defender's speech, because he had not applied for one, with the exception of Queen Margaret College. The speech was not known then in Glasgow. He thought it was known now.

Re-examined—He informed Mr. Burnet that he never would say anything antagonistic to the Christian religion. Mr. Burnet spoke cordially to witness after the lecture, and said that was the only thing he objected to.

James Robertson, formerly reporter on the *Aberdeen Evening Express*, and George Anderson, reporter, *Aberdeen Evening Gazette*, spoke to their reports which appeared in these Aberdeen papers in March, 1892, of the speech in question by the defender.

Alexander White, clerk to the School Board of Kemnay, spoke to what took place at the Kemnay meeting at which Mr. Burnet interrupted; and in cross-examination stated that he understood the pursuer to say that his next lecture on the story of the earth was the true one, and the account in Genesis not. Q. If his story was true and different from that given in Genesis, most people would understand that the account in Genesis was not true?—A. I could not say.

John Low, farmer, Monymusk, a member of the School Board, said that the pursuer's lecture at Monymusk was on the phosphates in the rocks, and in speaking generally about phosphates and how beneficial they were, the pursuer said he thought it was a pity that there was not more phosphates put into the rocks at Monymusk; it would have been so convenient for the farmers about the district. Q. Did you understand that he was saying anything contrary to religion at that time?—A. I thought he said it merely as a joke. It did not offend me at any rate. Cross-examined—The pursuer did not say that anyone should have put phosphates into the rock; and witness did not know that the pursuer mentioned the Creator.

Dr. Marshall, rector of the High School, said that the speech by the defender, in his opinion, would be calculated to injure the pursuer as a teacher. One reason was that a person employed to teach a subject such as geology to a country audience, and who took the opportunity, instead of teaching that, to preach a kind of blasphemous rationalistic doctrine would be an unsuitable person to have in a school or lecture hall, and he would also be a person, I should think, destitute of tact, and for that reason also an unsuitable person to employ. Cross-examined—Do you think a person would be destitute of tact who, on giving a lecture on the geology of soils to an agricultural audience, announced that his next lecture would be the story of the earth as told by science, which would be different from and much more interesting than that given in Genesis, and that it would have the advantage of being true? If he said that or similar words do you think that would show that he was a person deficient in tact?—A. I think so.

Dr. James Oliphant, Charlotte Square Institution, Edinburgh, gave evidence to the same effect.

The Rev. Mr. Bell, minister of the Free High Church, Aberdeen, gave evidence as to his impression of the remarks by the defender at the opening of the bazaar.

This concluded the pursuer's case, and evidence was then heard for the defence.

The defender, in reply to Mr. Jameson, stated that he was chairman of the School Board of Monymusk, but was not a member of the County Council. He was present at one of the lectures delivered by the pursuer, and witness thought he said in an offensive way that either the Lord Almighty or the Creator had made a mistake in not putting sufficient phosphorous or phosphoric acid into the soil. Witness thought the pursuer was going needlessly out of his way to assail the account in the Bible, and that he was speaking in a very offensive way of the religion of most people. Witness did not intend to represent in his speech at Aberdeen that the pursuer had not been lecturing as he had been paid for. He meant to say that the pursuer was adding, as it were, by putting in these offensive remarks, which were quite uncalled for. He meant to say that the pursuer was doing a great deal of harm to religion by talking lightly about religion. He did not intend it as a personal attack on the pursuer or as a thing that would hurt him in his professional career. It was not intended as a personal matter, but against the general spread of infidelity. He purposely avoided mentioning either name or time or place, so as not to direct attention to the pursuer personally. Witness belonged to the Episcopalian Church.

Cross-examined by Mr. Strachan—Q. Why did you not offer to bring it before Mr. Johnstone himself or the County Council rather than make it a subject for a speech in Aberdeen?—A. I thought it was a very good thing to talk about the unity of Christianity and the necessity of abating these influences. Witness was referred to the sentence in his speech—"This gentleman, paid at the public expense, used his lectures for the promotion and preaching of blasphemy." What, asked counsel, was there at the lecture that justified the charge?—A. The sentence that the Creator had made mistakes.

John Buckle, Monymusk, said he was present at the pursuer's lecture, and that the pursuer, in speaking of the deficiency of phosphates in the soils of the country, in his remarks said that the Creator had made a mistake in not putting more phosphates into the soils of the country. The pursuer also made a reference to the expense of importation from foreign countries. Witness thought the pursuer's manner was rather irreverent.

Cross-examined by Mr. Wilson—The defender was his landlord. Witness was also on the School Board. Q. Was not what the pursuer meant that it was a pity that there was not phosphates in the rocks round about the districts?—A. I do not know what his meaning was, but his words were that the Creator had made a mistake in not putting phosphates in the soil.

Alexander Simpson, schoolmaster, Monymusk, stated that what the pursuer said at the lecture was—"What one in a moment of irreverence might say was a mistake on the part of the Creator to put so little phosphorus in the rocks." Witness thought the remarks were out of place. Afterwards, in speaking to the pursuer about it, the pursuer did not seem to recollect exactly what he said, but said he could not have used the words which witness had already mentioned.

A. G. Burnet, proprietor of Kemnay (76), said that in one of the pursuer's lectures the thing he noticed was that the pursuer had previously spoken as if it were an open question as to whether the Bible account of the creation was true or not, and that the pursuer said in connection with the next lecture he hoped to convince them that it was not true. Witness got up to protest against it, and said that he considered it unsuitable in a Christian country, and he protested against pursuer making such statement in a Christian country such as this was. Witness considered that they ought in a Christian country, and the pursuer ought as a lecturer, to take it for granted that the Bible was infallible and necessarily right in regard to all it said, and that in regard to all its narrations it was necessarily correct. Witness thought the remarks were exceedingly unsuitable.

Cross-examined—Witness could not say that he remembered anything that the pursuer said, but he did remember what he himself said.

John Christie, farmer, Kemnay, stated that at the next lecture the pursuer said that as it appeared to affect the feelings of some of his audience he would not touch upon the Bible account of the creation.

James Diach, tailor and clothier, Kemnay, gave testimony as to what the pursuer said at the meeting at which Mr. Burnet spoke.

Colonel Innes said he was chairman of the Technical Instruction Committee of Aberdeen County Council at the time the speech was made by the defender. There was also a lecturer on chemistry, and it occurred to witness that it and the pursuer's subjects overlapped. Finally, by a minute dated 1st July, 1892, they determined to have only three lecturers, owing to the necessity of economising funds. The speech of the defender had nothing to do with the dispensing with the pursuer's services.

John Clark, secretary to the Technical Committee of the Aberdeen County Council, said that the reason of the pursuer's services being dispensed with, was, as he understood, that they began on too extensive a scale of itinerary instruction, and had left out of account other branches that required to be recognised, and other circumstances

pressed on them so that they had to receive attention the second year. It was nothing personal to the pursuer that they dispensed with his service rather than anybody else.

William Tait, papermaker, Inverurie, the present chairman of the Technical Instruction Committee of the Aberdeen County Council, said he had succeeded Colonel Innes. The reason of the pursuer's services being dispensed with was purely a question of finance.

This concluded the evidence, and the case was adjourned till the next day, when counsel addressed the jury and the judge summed up.

The jury unanimously returned a verdict in favour of the defender, Sir Arthur Grant

ALLOYS OF ALUMINIUM.

ALUMINIUM when alloyed with titanium, especially in certain proportions, gives a product which, in addition to the many useful properties of aluminium which render it capable of varied application in the arts, possesses other beneficial properties in which aluminium is deficient. Thus, although pure aluminium is somewhat soft and only slightly elastic, even after hammering or rolling if it is alloyed with 10 per cent. of titanium or less a product is obtained intrinsically harder than aluminium, approximately as incorrodible, and capable of acquiring by hammering or rolling a degree of elasticity and hardness comparable to spring brass.

This alloy is fusible at a temperature below the melting point of steel, and its fusing point and specific gravity increase with the proportion of titanium which it contains. When the proportion of titanium is less than 5 per cent. the alloy is nearly as malleable as pure aluminium, and its malleability decreases and its hardness increases as the proportion of titanium in the alloy is increased. The best material for commercial uses, where elasticity combined with easy malleability is required, is an alloy containing titanium from one-half of 1 per cent. (more or less) to 2 per cent.

By substituting for the titanic oxide or salt the oxides or salts of other metals more electro negative than aluminium the metallic bases of such oxides or salts may be alloyed with aluminium in like manner. Metals which can be alloyed thus with aluminium are bismuth, cadmium, caesium, cerium, chromium, cobalt, copper, gold, iron, lead, manganese, molybdenum, nickel, osmium, palladium, platinum, silver, tin, titanium, tungsten, uranium and zinc.

This alloy is made as follows: A bath of fluorides of aluminium and sodium or of fluoride of sodium, or of fluorides of aluminium, sodium and calcium, or generally a fluoride or fluorides of a metal or metals more electro positive than aluminium, is made by fusion. There may be added to these fluorides chlorides of the alkalis or alkaline earths; but these are unnecessary.

Cryolite of commerce may be used as the fluoride constituent of the bath, but it is in some respects disadvantageous because of its iron, which in the alloying process is reduced, and by mingling with the alloy impairs its quality. For this reason the fluoride is employed in as pure state as possible. Either before or after the fusion of this fluoride bath there is added to it a reducible oxide or salt of the rare metal to be alloyed. In making an alloy of aluminium and titanium titanic oxide is preferably used, and after thorough admixture of these substances, the oxide or salt being dissolved by the fluoride, the aluminium is introduced either in a molten state or in a solid state. When introduced in a solid state it is fused by the heat of the bath, and when fused a reaction between the aluminium and the oxide or salt at once takes place, the oxide or salt is reduced, its oxygen or acid radical combines with a part of the aluminium and the freed metallic base immediately alloys with the remainder of the aluminium. In practice the fluorides of aluminium and sodium, which may be employed in amount ranging from 100 to 400 per cent. of the weight of the aluminium intended to be added, are preferred. This bath is melted in a carbon crucible and the oxide or salt of the metal to be alloyed is added thereto.

When the whole mass is incorporated and as nearly fluid as possible metallic aluminium is charged into the crucible, the relative proportions of the aluminium and oxide or salt being such that the percentage of oxide or salt shall be about twice the percentage in which its metallic base is desired to be present in the alloy. Immediately on the introduction of the aluminium the reaction noted takes place between the aluminium and the oxide or salt, and is accompanied by a rapid elevation of temperature in the bath. After waiting until further reaction ceases, which is indicated by the cessation of rise of the temperature, the contents of the crucible are poured into a suitable receptacle, and after cooling somewhat the melted fluoride can be separated as a supernatant slag from the metallic alloy at the bottom of the vessel. The alloy is then collected and is preferably remelted to cleanse it thoroughly from slag and otherwise to improve its properties.

It is important that the reduction of the oxide or salt of titanium and its alloying with the aluminium should be conducted in a non-silicious

crucible (preferably a carbon crucible), since if the vessel be silicious in its composition a considerable portion of silicon will be alloyed with the aluminium and titanium, producing a compound of inferior quality.

The addition of chromium to the alloy of aluminium and titanium is of advantage in increasing the stiffness of the alloy. It is desirable that the chromium should be less than 15 per cent., preferably less than 5 per cent. As the chromium is increased there is a corresponding increase of hardness. The difference between the alloy of aluminium and titanium and the alloy of aluminium, titanium and chromium is that the chromium confers greater rigidity than the titanium; but if more than 5 per cent. of chromium is used there is a greater loss of ductility.

These processes and alloys have been patented.

Official Memoranda.

(From the Board of Trade Journal.)

THE HUNGARIAN SUGAR INDUSTRY.

Mr. R. Milbanke, Her Majesty's Consul-General at Buda-Pesth, states that the number of sugar manufactories in Hungary will soon be increased by four new establishments, so that in the next season there will be 20 completely fitted up sugar factories in that country.

The existing establishments have this year consumed more sugar-beet than was to have been expected, owing to the fact of last year's crop having produced an excessive yield, and the quality having been an especially good one.

The quantity hitherto consumed and still ready for manufacture during the current season is estimated at about 9,000,000 metric centners. The crop yielded some 13,000,000 metric centners beet, leaving a surplus of about 4,000,000 metric centners, part of which has been exported, while the remainder it has as yet not been found possible to prepare for manufacture.

THE SUGAR INDUSTRY OF GERMANY.

The commercial agent of the United States at Magdeburg, in his report for 1891-2, says:—

The German sugar-beet industry suffered a slight reverse in the last campaign. The year 1891-92 was not disastrous by any means, but neither could it be called profitable when compared with recent years. There was a decrease of 10.7 per cent. in the quantity of beets raised, and this in the face of an increase of nearly 2 per cent. in acreage. A corresponding decrease in percentages, as against the preceding year, is seen throughout the other branches. This is seemingly serious, but in reality bad weather, not bad management, is directly responsible for the unfavourable showing.

The area devoted to beet culture in 1891-92 was 336,454 hectares (1 hectare = 2.471 acres); in 1890-91, 329,917 hectares. The average crop per hectare was 282 metric centners (1 metric centner = 224 pounds) in 1891-92, and 322 metric centners in 1890-91. Of the roots grown in 1891-92 there were 48.9 per cent. grown by manufacturers, and 51.1 per cent. were purchased; the proportion for the preceding year was 48.2 and 51.8 per cent. respectively.

The number of factories fell from 406 to 403; four ceased working and one new one was established. The factories began operations for the most part in the second half of September, and, owing to the introduction of improved machinery, required on an average only 81 days to work up the crop. The official figures giving the average number of working days are 81.2 for 1891-92, as against 97.5 for 1890-91. Of course, it must further be borne in mind that there was a reduction in the number of beets produced. There were 94,880,022 metric centners of roots worked up in 1891-92, and 106,233,194 metric centners in 1890-91, a decrease of 11,353,172 metric centners.

The sugar yield was 10.05 per cent. less than that of the preceding year. The production was 1,198,156 tons for 1891-92, and 1,331,965 for 1890-91, a decrease of 133,809 tons. The exports for the two periods mentioned were 704,206 tons and 758,194 tons respectively; the imports, 8,695 tons in 1891-92, and 6,845 tons in 1890-91. The consumption per head was 10.67 kilograms for 1891-92, and 10.85 kilograms for 1890-91. The quantity of beets required to produce 1 metric centner of raw sugar in 1891-92 was 8.29 metric centners; in 1890-91, 8.27 metric centners. The yield per hectare of sugar was 35.65 metric centners in 1891-92, and 40.76 metric centners in 1890-91.

The average price of beets during the campaign was 1.80 marks per metric centner. The money value of the sugar produced is represented at 418,156,000 marks in 1891-92, and 443,544,000 marks in 1890-91. The revenue figures for the last campaign are not yet accessible. For 1890-91 the tax on beetroots amounted to 84,986,552 marks, the import tax on sugar to 2,256,315 marks, and the consumption tax (12 marks per 100 kilograms of inland raw sugar) to 55,732,472 marks,

yielding a total income of 142,975,399 marks. The amount paid in bounty on sugar exported was 66,674,319 marks, thus leaving a balance of 76,301,020 marks, equivalent to 1.53 marks per head of population. Reckoning the cost of collection at 4 per cent. the revenue under this head was 70,672,264 marks.

PATENTING INVENTIONS IN RUSSIA.

In consequence of continual inquiries received by the department of trade and manufacturers, in reference to petitions for granting patents for different inventions and discoveries, and chiefly in answer to the inquiry, whether it is obligatory to present such petitions through the local patent agents or technical agencies, the department of trade and manufacturers begs to announce that not only does it not prohibit the direct communications of the inventors to the department, but on the contrary it prefers such communications to communications through any intermediaries.

To avoid superfluous correspondence about the mode of petitioning for granting patents, the department considers it necessary to here point out that according to the existing laws of patents the person wishing to obtain a patent for any invention must present or send by post a petition to the department of trade and manufacturers in St. Petersburg. In this petition the title of the invention and the time for which the petitioner wishes to obtain the patent must be mentioned, also the name, the position, and the place of residence of the petitioner. To this petition must be annexed a perfectly clear and exact description of the invention, showing at the end of it what the inventor considers new in his invention (parts of machinery, apparatus or mode of working, &c.), or that the object of the patent is new in all parts or processes and so on.

In asking for the patents for machinery, apparatus, and similar objects, there must be annexed, besides the description on a separate sheet or sheets, and a correct and clear drawing in which the parts of machinery, apparatus, &c., must be designated with letters or signs, perfectly corresponding with similar letters or signs in the description. In general such drawings must be presented whom it would be impossible to form a clear idea of the invention or the mode of using it without them. Each petition must have two adhesive stamps of 80 copecks value, besides which the description must have an adhesive stamp of the same value on every separate sheet. The patent stamps required by the law must be presented with the petition, but to avoid sending money by post, they may be paid into the local provincial treasuries to the credit of the department of trade and manufactures, and the receipt of such a treasury must be annexed to the petition. The amount of the patent stamps fixed by the law varies according to the time for which the petitioner desires to obtain the patent. It is 90 roubles for a term of three years, 150 R. for five years, and 450 R. for ten years. On the receipt of the petition with all the required annexes and the receipt showing that the patent stamp is paid, the petitioner is granted a certificate that his petition was received, and a notice of such a petition is published in the following Government papers: *The Government Messenger*, *The St. Petersburg and Moscow Gazette*, *The Warsaw Daily News* and the *Messenger of Finances, Industry and Trade*.

THE PULSOMETER ENGINEERING CO.

THIS company had an interesting exhibit of pumps and filters at the Royal Agricultural Show, which was recently held at Chester. The exhibit, as is customary with this firm, was a working one, the pump and filters being shown at work. A No. 5 Pulsometer was thus shown fitted with the "Grel" neck, the action of which corresponds to a cut off valve on the back of the main slide in an ordinary engine, the steam actuating the pump being worked expansively.

A Torrent filter, capable of purifying 1,000 gallons per hour, was shown at work, under as nearly as possible the same conditions as would obtain in actual use. The water going into this filter was heavily charged with dirt and apparently unfit for manufacturing or other purposes. During the passage through the filter it loses its dirt and colour, and reappears bright and sparkling. In times like the present, when the water in many districts is so scarce, the Torrent filter should be a great boon.

The installation includes a Deane pump pumping up water into the dirty water tank, and shows very completely how a filtering and water supply plant would be erected in a number of situations.

One of the most interesting items in this exhibit was the Champion Ice-making machine. The little machine shown is wonderfully compact and simple, occupying a space of only 8.6 x 6.0 x 3.0, and will make 10 cwt. of ice per 24 hours. It is especially suitable for dairies, hotels, small cold rooms, &c. on land and aboard ship.

Parliamentary Jottings.

RIVERS POLLUTION BILL.

THE Rivers Pollution Prevention (No. 2) Bill (Viscount Cross's Measure) has passed through the House of Lords Committee without amendment.

THE "LABOUR GAZETTE."

In the House of Commons, in answer to the question of Mr. Hobhouse, Mr. Mundella said,—The importance of obtaining information as to agricultural labour has not been overlooked by the Labour Department. They are collecting material for trustworthy reports on the subject, which will appear in future issues of the *Labour Gazette*.

Sir J. Gorst asked whether the right hon. gentleman would take care to obtain information on this subject from persons who were not political agitators. (Hear, hear).

No answer was given.

CHOLERA.

On Tuesday last, in answer to Mr. H. Foster, Sir W. Harcourt said the officers of Customs had been instructed to render all assistance in their power in respect to the visitation of ships as a precaution against cholera. That would largely reduce the cost to local authorities. There seemed no ground on which the case of cholera could be distinguished from that of small-pox, or scarlet fever, or other dangerous disease liable to be communicated from one place to another. There were no Imperial funds available for dealing with cholera without increased taxation. The tax payers had recently been charged with an additional sum of £4,000,000 a year for the relief of local taxation, and it appeared to him that a moderate occasional expenditure for purposes of that character should, if necessary, be defrayed from that source.

In reply to Mr. Loder,

Mr. Fowler stated that a ship arrived in the Tyne on Sunday evening with the body of a member of the crew who had died from cholera. Every precaution had been taken in the matter.

THE GAS SUPPLY OF LONDON.

THE quality of the gas supplied to the City of London for the week ending June 17, 1893, was good. According to the report of Mr. W. J. Dibdin, chemist and superintendent gas examiner to the London County Council, the tests made at the various testing stations showed no deficiencies in illuminating power. The following figures have been prepared from the report, and show the average composition of the gas calculated on the mean test:—

Company.	No. of districts tested.	Illuminating power (in stand. sperm candles).	Sulphur. Grains in 100 cb. ft.	Ammonia. Grains in 100 cb. ft.	Sulphuretted hydrogen.
		Mean average.	Mean average.	Mean average.	
Gas Light and Coke Co.	14	16'42	11'09	0'34	Nil.
South Metropolitan Gas Co.	6	16'65	11'06	0'71	Nil.
Commercial Gas Co.	2	16'50	9'80	0'30	Nil.

The standard gas supplied by these companies should have an illuminating power of 16 sperm candles, and contain not more than 22 grains of sulphur and 4 grains of ammonia per 100 cub. ft. of gas on an average of three days.

Correspondence.

* * * We do not hold ourselves responsible for the opinions expressed by our correspondents.

ANSWERS TO CORRESPONDENTS.

S. Co.—It will be returned shortly.

B. B.—It has received our attention.

S. W. J.—We have forwarded you an extra one.

K. C. and Co.—It has been stopped.

J. M.—Thanks for your prompt attention.

G. H. A.—It will not occur again.

J. and F. H.—See the current issue.

E. C.—We have sent on No. 317, the others will follow in due course.

D. and Co.—Thanks for letter, we have noted contents and await your pleasure. The earlier the better.

ANXIOUS.—(1) Yes, there will be a report. (2) We really cannot say, much depends on the weather, but every effort, we are sure, will be made to court success.

Trade Notes.

THE LATE DONALD'S CHLORINE Co.—We have it on very good authority that attempts are being made in London to reorganise and resuscitate this company by the formation of a new syndicate. The Gloucester and Oxford people have had enough of Taylor's nitric acid process; we should fancy the Glasgow people are satiated with £30,000. to the bad and not a single cask of bleach. The Manchester capitalists have certainly not made their fortune out of Davis's process, and now the Londoners are asked to climb the greasy pole, verily "*une marchandise qui plait est à demi vendue*."

CHANGE OF ADDRESS.—We learn that Messrs. H. Hooper and Bradshaw Brown have removed from their offices at Millwall, London, E., and their present city address is now Billiter-square Buildings, E.C.

A GASHOLDER CONTRACT.—The Widnes Town Council has entrusted Messrs. R. and J. Dempster, of Manchester, with the erection of a gasholder on the Gadd and Mason principle. The holder is to have three lifts, with a diameter of 115 feet 6 inches.

FIRE AT A PAPER MILL.—On Sunday night last a fire occurred at the Mills of the Towl Paper Company, Maidstone, and in consequence some two hundred hands employed at the mill have been temporarily thrown out of work.

NEW CHEMICAL WORKS IN BADEN.—A new company has been formed in Oos, Baden, to carry on Portland cement and chemical works, with a capital of M 850,000. The new company has taken over the cement and chemical works of Messrs. Hoffman and Co. Dr. Philipp Hoffmann and Herr L. A. Hoffmann are directors.

OLIVE OIL OR VASELINE?—The *Diogenes Zeitung* reports that a form of adulteration recently detected, but which has been practised for a considerable length of time, consists in the addition of 25 per cent. of pure odourless vaseline to olive oil. The vaseline, it is said, is added to the ground olives, left with them for twenty-four hours, and then pressed. By this treatment the vaseline acquires the odour and the taste of the olive oil, and can be mixed with the latter in all proportions.

DIAMONDS AT CHICAGO.—A very complete diamond exhibit is made by Cape Colony, South Africa, at the Columbian Exposition. The exhibit includes 10,000 carats of uncut stones, a large quantity of very fine cut and polished ones, together with all that is necessary to show the process of mining and washing. For this it has been necessary to transport to Chicago 100 tons of pulverised blue earth, 50 tons of unpulverised earth, and a complete washing machine, which will be operated by natives. The exhibit will also include a unique collection of crocidolite and special diamondiferous products.

THE NITRATE COMBINE.—The Permanent Nitrate Committee intimates that it has been agreed that the exports of nitrate of soda this year from Chili to all parts shall in no case exceed 21,000,000 quintals (a quintal = 220'4 lbs. avoirdupois). Those for the first quarter of 1894 will be 4,000,000 quintals, equally distributed over the three months, but subject to some augmentation should consumption largely increase before September 30 of the present year or should the price rise above 9s. 6d. per cwt. Recent telegraphic advices from the coast report increasing scarcity of labour.

TREATING SULPHITE LIQUORS.—A Norwegian has patented a process for treating the lyes left from the manufacture of sulphite cellulose. The treatment consists in adding lime or other alkaline earth to the liquor and heating the mixture by steam to 100° C. at a pressure of about 90 lbs. to the square inch. Calcium monosulphite, calcium sulphate, and organic compounds of lime are thrown down as a precipitate, which is filtered off. This precipitate is then treated with sulphurous acid to obtain bisulphite instead of using fresh lime. After this treatment the organic compounds of lime are still insoluble. These are treated with hydrochloric or sulphuric acid, whereby sulphurous acid is liberated and calcium sulphate and organic matter left.

CHOLERA PRECAUTIONS.—The London sanitary authority is making preparations to deal with the cholera question. The necessity for the issue of regulations happily did not arise last year, but, in view of the possible recurrence of cholera during the approaching summer and autumn in Continental ports with which this country is in rapid and close communication, the Board think it right that the sanitary authority should take into their early consideration the question of their readiness to meet any emergency that may arise. Notice has been issued from the Guildhall that an arrangement has been made with the Commissioners of her Majesty's Customs by which the system of joint visitation off Gravesend, by the officers of her Majesty's Customs and the medical officers of the Port Sanitary authority, of vessels coming into the port.

AN IRREPRESSIBLE INDUSTRY.—In the present day of high pressure working, "the survival of the fittest" is a maxim which finds constant verification. Matches it would be supposed had by this time annihilated their rival the flint and tinder box, but this is not so. The making of tinder flints is a flourishing cottage-industry in the village of

Bramdon, on the borders of Norfolk and Suffolk. About three months since we were sympathising with Madrid for being destitute of matches, but the situation could not have been as formidable as appearances led one to suppose, as it turns out that it is the trade with Spain and Italy in tinder box flints which enables this ancient industry to survive in this country. In the rural districts of these countries, the tinder box seemingly still keeps its ground.

THE CHESHIRE ALKALI WORKERS' DISPUTE.—In reference to the dispute which has arisen with the alkali workers in Cheshire, Messrs. Bowman, Thompson and Co., of Northwich, say that owing to the depression in the market, they found it necessary to considerably curtail their expenses both in labour and material. The suggestions made to the men were that they should work on the 12 hours system for an amount of wages which would have been greater per individual than they were earning. The men were also offered the alternative of piecework. The larger number of the men remained at their work, but owing to intimidation and boycotting of those who were being brought in to fill the places of the men who had left, the company were compelled to lock out the whole of the men last Thursday.

AN AUTOMATIC STRAW TRUSSER.—An interesting machine was to be seen working at the Royal Agricultural Show at Chester, last week, namely the Howard Straw Trusser. This machine was awarded the silver medal. The leading features of the improvement, to which the judges gave very close attention, were the automatic conveyers for taking the straw from the hopper as it falls from the threshing machine, which effectually prevent the possibility of the lodging of the straw in the hopper, or the choking to which such machines without conveyers have been liable when working with damp straw. An ingenious arrangement automatically stops the inward movement of the straw during the brief time the binding needle is out of the table in the act of binding the trusses, and instantly the truss is ejected, the conveyers automatically recommence feeding the straw to the binding table. Messrs. Howard have made and sold about 1,500 of these machines since they were awarded the First Medal by the Royal Agricultural Society of England for Straw Trussers at work in 1883.

THE TEMPERATURE OF STEAM.—A number of experiments to determine the temperature of the steam arising from a boiling salt solution have been made from time to time, but the conclusions have frequently been of a conflicting character. The difficulty of arriving at trustworthy results lies in the fact that the walls of the steam chamber must be above 100° C., and yet below the temperature of the solution, and that at the same time a sufficient quantity of steam must escape from the solution to insure that these walls shall have no material cooling effect upon the steam. These desiderata are all met by an arrangement employed by Professor Sakurai, and described in the *Journal of the College of Science, Imperial University, Japan*. From experiments on solutions of calcium chloride, sodium nitrate, and potassium nitrate, it appears that the temperature of the steam escaping from a boiling solution is exactly the same as that of the solution itself.

Market Reports.

TAR AND AMMONIA PRODUCTS.

The tar products market is in a most deplorable state, and so far as the lighter products are concerned, there is no reliance to be placed in published quotations. Benzols, 90's and 50/90's, are stated to be worth 1s. 6d. and 1s. 5d. respectively, but at such prices, benzol would jump towards the purchaser. Aniline is sick, carbolic being the only article in request.

The sulphate of ammonia market is very strong, though not without anxiety for the future. All the parcels that have been recently offered have found ready buyers at full rates. At Hull and Liverpool the quotations are £13., and Leith £13. 2s. 6d., while makers are holding for £13. 5s. Beckton quotes £13. 5s. for July, while London outside makes are changing hands at £13. 2s. 6d.

REPORT ON MANURE MATERIAL.

There has been during the week a continued demand for material for forward delivery, but the higher prices demanded have largely stood in the way of business.

The quotation for 75/80% Florida phosphate rock, 1893-94 shipment, remains 8½d. per unit, c.i.f., in cargoes to United Kingdom. Peace River rock and hot-air-dried South Carolina River rock are still quoted 6½d. per unit, but for cargoes for good ports this is probably a

fraction above the actual value. To-day's quotation for River Plate bone ash, in cargoes, is £3. 7s. 6d. on 70% nett, Hamburg terms.

There is large enquiry for cargoes of River Plate bones, but at the moment nothing offering. There would, no doubt, be buyers at £4. 5s., for either United Kingdom or Continent. The quotation for crushed Kurrahee bones for autumn shipment is £4. 5s. per ton, delivered ex quay Liverpool, and 2s. 6d. more would probably have to be paid for Bombay bone meal, fair average quality. On spot there is nothing doing, the demand for the season being practically over.

Nitrate of soda is firmer in all positions. On spot, owing to great reduction in the stock, price has been advanced to 9s. 3d. per cwt. Due cargoes are worth about 8s. 9d. per cwt., and May-June-July shipments 8s. 9d. to about 9s.

Dried blood is still enquired for, but there is no alteration in value to note.

MISCELLANEOUS CHEMICAL MARKET.

The demand generally for most chemicals continues good. Bleaching powder still in strong request, and price well maintained at £8. 10s. hardwood, f.o.b., and £8. softwood, rails. Caustic soda has slightly improved in demand, and is moving more freely: prices, however, are unchanged. Soda ash does not improve, and as a consequence, prices all round tend in buyers' favour. Chlorate of potash is not selling so readily, and lower figures are quoted—8d. per lb. is about spot value. Chlorate of soda scarce and price nominally 9½d. per lb. Sulphate of copper weaker at £16., f.o.b. Sulphur steady at £4. 2s. 6d. for lump, and £6. 10s. for roll. Lead salts in want of improvement. Foreign white, £25. 10s. c.i.f.; nitrate, £19. Acetate of soda rather stronger, with better demand. Acetates of lime unchanged. White powdered arsenic is firmly held, and price is firm at £13. 10s. Garston. Nitrate of soda scarce, with but few sellers. Stocks are light, and value to day is about £9. 5s. Bichromates of potash and soda quiet, at convention prices, with but small business doing. Oxalic acid 3d. per lb., and rather slow of sale. Caustic and carbonate of potash are in fairly good request, and prices are steady. We quote: Caustic, 75/80%, £19. 15s. Carbonate, 90/95%, £16. 15s. c.i.f. Borax quiet, and prices unchanged. Sal ammoniac has advanced £2. per ton; £37. for "firsts," and £35. for "seconds" are to-day's prices. Carbolic acids appear to be improving; the supply is not abundant, and we think higher prices are not improbable.

LIVERPOOL OIL AND COLOUR MARKET.

WEDNESDAY.

OILS—Palm oil is firmer and has experienced a fairly good demand. Lagos is selling at £24. forward and Benin and Cameroon at £23. all transit. Olive is steady but quiet, prices being unaltered. Linseed is very firm at the advanced prices, Liverpool makes in export casks being to-day worth 22s. to 22s. 6d. per cwt. Rape rules without change at 29s. per cwt. Cottonseed is steady, the quotations for Liverpool refined being 22s. 6d. to 24s. 3d. per cwt., but sellers at the lower figure are not numerous. Castor oil is firm, sellers of good seconds Calcutta at 2½d. per lb. are limited. First pressure French is steady at 2½d. to 2¾d. Tallow is steady with a dull market. Resin, common, is quoted 3s. 9d. per cwt., but the demand is quiet. Medium is offering at 4s. 3d. to 7s. 6d., and fine 8s. to 11s. 6d. per cwt. Spirits of turpentine are firm at 22s. 9d. to 23s. per cwt. Petroleum is quiet at last week's quotations.

COLOURS unchanged and steady. Ochres: Oxfordshire, common, £10., medium, £12., best, £15.; Derbyshire, common, 40s.; medium, 50s., best, 60s.; Welsh, best, 70s., seconds, 50s., and common, 18s.; Irish, Devonshire, 40s. to 45s.; French, J.C., 55s. to 60s.; M.C., 65s. to 67s. 6d. Umber: Turkish quiet; Devonshire, 50s. to 55s. White lead, red lead, and oxide of zinc unchanged. Venetian red, £6. 10s. to £10. Cobalt: Prepared oxide, 9s. 9d.; black, 9s.; blue, 6s. Zaffres: No. 1, 3s. 6d.; No. 2, 2s. 6d. Oxide of iron: Common, £6.; medium, £10.; finest, £20. Zinc oxide, £23. to £25.

THE LIVERPOOL MINERAL MARKET.

The mineral market continues brisk, with better prices ruling. Manganese stocks are being much drawn upon, and slow arrivals, hence prices remain very firm. Borate, 7d. per lb.; sulphate, £21. 10s.; oxalate, 1s. 6d. per lb.; chloride, £15., carbonate, £12. 10s., steady. Magnesite (raw lump) is very quiet; raw ground, £6. 10s., and calcined £12. 10s. Bauxite (Irish Hill brand): Shipments are very large, and

likely to increase; lump 20s., seconds 16s., thirds 12s. French chalk: The demand is a little easier this week, but prices maintain their firmness. Barytes: Carbonate scarce; nuts, 72s. 6d. to 85s.; finest white sulphate is in demand. "Angel White," No. 1, 70s.; No. 2, 60s. to 65s.; No. 3, 45s. Pumicestone quiet. Iron ore flat, Bilbao, Irish, and Cumberland slow. Santander and manganese are quiet. Emerystone firm; No. 1 lump, £5. 10s. to £6.; smalls, £5. to £5. 10s. Fullers' earth: Best lump, 55s.; fine impalpable ground, £7.; "Emerald" ground, 80s. Scheelite, wolfram, tungstate of soda, and tungsten metal in good demand. Chrome ore: The improvement reported last week has been well maintained, with an increased demand for export. Antimony ore easier, at £11. 10s., and metal £43. to £45. Asbestos firm. Pottery lead ore, smalls, £10. 10s. to £11. Calamine strontia sulphate (celestine) quiet. Limespar steady, especially for English manufactured; old G.G.B. brand in demand at 50s. (ground). Felspar quiet. Fluorspar: Best quality scarce. Ferro-manganese slow. Plumbago: Spanish, £5.; best Ceylon lump at last quotations; Italian and Bohemian, £4. to £12. per ton; "Founders," £5. to £6.; Blackwell's "Mineraline," £10. French sand, 20s. to 22s. 6d. Ground mica, £45. to £50. China clay steady, common, 18s. 6d.; good medium, 22s. 6d. to 25s.; best, 30s. to 35s. (at Runcorn). Bog ore (oxide of iron); finest quality 25s. to 30s.

THE METAL MARKETS.

LONDON, WEDNESDAY.—Pig iron dull. Scotch warrants closed at 41s. 8d. cash. Middlesbrough 35s. 3d. cash, and hematite 44s. 9d. cash. Copper, firmer: Chili bars, G.O.B.'s and G.M.B.'s closed at £43. 16s. 3d. to £43. 17s. 6d. cash, and £44. 3s. 9d. to £44. 5s. three months. Tin weak: Straits closed at £83. 10s. to £84. cash, and £81. 17s. 6d. to £82. three months. Australian £84. 10s. cash. English ingots, £87. 10s. to £88. Lead, weaker: Spanish, £9. 8s. 9d. to £9. 10s.; English, £9. 10s. to £9. 15s. Silesian spelter: Ordinary, £17. 15s. to £17. 17s. 6d. Nickel, 1s. 8½d. per lb. Antimony, £39. Quicksilver: First hands, £6. 17s. 6d.; second hands, £6. 17s. Copper shares inactive: Cape, 1¼ to 1½. Copiapo, 1¾ to 2. Libiola, 2½ to 3½. Mason and Barry, 1¾ to 2. Rio Tinto, 15 to 15½; Tharsis, 4¼ to 4½; Namaqua, ½ to ¾.

WOLVERHAMPTON, WEDNESDAY.—Improvement maintained. Iron merchants reported advices from certain of the oldest tube strip makers declining to sell further excepting at 2s. 6d. to 5s. advance. Sheets also show similar advance, and galvanisers are trying for the same rise. Gas strip £5. 12s. 6d. to £5. 15s., hoops £6. 5s. to £6. 10s. Common bars worth more money, at £5. 10s. to £5. 15s. Sheets, singles £6. 15s.; doubles, £6. 17s. 6d. to £7.; Pigs better demand. Prices rising. Coal trade excited.

GLASGOW, WEDNESDAY.—Market steady with moderate business. Scotch done at 41s. 9d., cash, also at 41s. 11d. and 41s. 11½d. one month; closing with buyers at 41s. 9d. cash, and 41s. 11d. one month, sellers ask ½d. more. Cleveland closes with buyers at 35s. 3d. cash, and 35s. 5½d. one month; sellers ask 1½d. more. Cumberland hematite idle; closing with buyers at 44s. 9d. cash, sellers ask 44s. 10½d. Middlesbrough hematite easier; closing with buyers at 43s. cash, sellers ask 43s. 1½d.

TYNE CHEMICAL REPORT.

TUESDAY.

Chemicals are steady with a good business doing, especially in caustic soda. Shipments from the Tyne during the past week have been heavy, and stocks are kept very low. Prices are practically unaltered, as under.

Bleaching powder, softs, £8. 5s. per ton nett; hards, £8. 10s. per ton; caustic soda, 76/77%, £11. per ton, 70%, £9. 10s. per ton; recovered sulphur, 2 cwt. bags, £4. 2s. 6d. per ton; soda ash, 48%, £4. per ton, 52%, £4. 7s. 6d. per ton, 56%, £4. 15s. per ton; alkali, 36%, £3. 15s. per ton; white alkali, 48%, £4. 15s. per ton, 50%, £5. per ton, 52%, £5. 5s. per ton; hyposulphite of soda, in 5-7 cwt. casks, £7. per ton, ditto, in 1 cwt. kegs, £7. 15s. per ton; silicate of soda, 75° Tw., £2. 15s. per ton, 100° Tw., £3. 10s. per ton, 140° Tw., £3. 17s. 6d. per ton; soda crystals, in casks, £2. 10s. per ton gross weight, in 2 cwt. bags, £2. 10s. per ton nett weight; chlorate of potash, 83½d. per lb. less 6%; pearl hardening, £3. per ton nett; pure white sulphate of alumina, £4. 2s. 6d. per ton; blanc fixe, £7. 10s. per ton; chloride of barium, £7. 10s. per ton; carbonate of alumina, £28. 15s. per ton nett; aluminate of soda,

£33. 15s. per ton nett; in 5 ton lots, £28. 10s.; hydrate of barium, £10. per ton nett.

South Durham salt.—Steady at 9s. 1d. per ton f.o.b. Tees.

Coals are steady, especially best Northumbrian. Prices are as follows: Best Northumbrian, 8s. 10½d. per ton; second quality, 8s. 3d. per ton; small steam, 3s. 6d. per ton; gas coals quiet at 6s. 3d. to 6s. 6d. per ton; bunker coals continue dull, 6s. to 6s. 6d. per ton; household coals weak, with a poor demand; coke in fuller demand, price for export is 14s. per ton.

HULL PAINT, OIL, AND COLOUR REPORT.

TUESDAY.

OILS.—Since our last week's report the tone of the market is unchanged, with little business moving; linseed oil having recovered a good deal of its previous prices ruling at the early part of the month, and closes with a hardening market. Refined cotton oil is a slow sale, prices being about the same though the market closes in sellers' favour. The exports for the week being 96 tons of linseed oil and 298 tons of refined cotton oil, and the imports, compared with the same time down to date of 1892, for olive oil is 5,794 casks against 7,664; refined Colza oil, 3,461 casks against 4,401 casks; tallow, 17,238 cwt. against 17,662 cwt.; and turpentine, 3,532 barrels against 6,053 barrels. The present quotations are: Linseed oil, on the spot, firm, 20s 10½d.; naked spot, July/Aug., 20s. 3d. to 20s. 6d.; Sept./Dec., 18s. 9d. to 19s. Casks and barrels extra, from £1. to 25s. per ton. Refined cotton oil, spot naked, 20s. 3d., buyers at same—July/Aug., Nov./April, 18s. 6d.; refined rape oil in casks, 25s. 9d. per cwt. There is no change in the positions of olive oil, which is of slow sale. Turpentine, unchanged. Petroleum jellies, 26s to 28s.

CAKES.—This market is more animated than the oil trade, and prices are firmer in all positions, owing to the continued drought which will make, in the future, all kinds of fodder very scarce; the average hay crop of the United Kingdom is 14,000,000 tons, and it is estimated that the crop this year will not be half this quantity; straw and other things are estimated also to be proportionately scarce; when these facts are fully realised no doubt the demand for future contracts in feeding cakes will make prices go up. The present quotations are:—Linseed cakes, 95%, pure, £8. 12s. 6d.; best ordinary, £7. 7s. 6d. to £7. 10s. Cotton cakes, finest Egyptian seed, £5. 5s. to £5. 7s. 6d.; second quality about £5., with increased demand; Rape cakes, £3 15s.; round feed and oil cakes, £7. per ton.

PAINTS.—The trade in these goods continues very brisk, makers being still kept busy getting out of hand orders to complete the half-year. The demand and trade in white lead, zinc, and the better quality of varnishes continues good; the prices are:—Paints, ready-mixed, in 1 lb. to 14 lb. tins, 28s. to 30s.; Enamels, from 4s. 9d. per dozen; oxide of iron, dry, £9. to £18. per ton; Venetian red, dry, £6. to £10. per ton; French ochre, J.C., 55s. to 65s. per ton; red lead unchanged.

WEST OF SCOTLAND CHEMICALS.

GLASGOW, TUESDAY.

During the week there has been rather more change in the general market than for a good while past, though, unfortunately, the change hardly takes the shape of any decided revival of life. Indeed, except for the rise of £2. a ton in sal ammoniac, the changes are nearly all to the losing side. Chlorate of potash has dropped another fraction, and bleaching powder, which is still £8. 5s. in makers' hands, has certainly been done at 2s. 6d. less by resellers. It is said that £8. has been taken, but this is doubtful.

Sulphate of ammonia has been, and is now, very strong, £13. 2s. 6d. (Leith), it is alleged, having been paid for a special spot lot towards the close of last week. To-day £13 at least, is procurable, while the forward quotation has correspondingly mended up to £12.—£12. 5s.

Mineral oils and paraffins are now all very close to zero so far as buying is concerned, the close of June and July being the deadest part of the season. Paraffin spirit has made a further descent, 86½° oil is also cheaper, the rest being nominally unchanged.

Dye chemicals are all quiet, as usual at this time of the year. Some briskness is looked for in about six weeks' time—not before.

Chief prices current are:—Soda crystals £2. 10s. nett, Tyne; soda ash £5. 5s. 6d. nett, Tyne; refined alkali £6. 10s. nett, Tyne; alum in lump, £5. 5s. nett, Glasgow; caustic soda, white, 74° £10. 10s., 70/72° £9. 10s., 60/62° £8. 10s., and cream 60/62° £8. 5s., all nett Liverpool; bleaching powder £8. 5s. nett Tyne; saltcake 24s; borax, English refined, £30., and boracic acid, £37. 10s. nett, Glasgow; bicarbonate of soda, 5-cwt. casks, £6. 10s., and 1 cwt. casks £6. 15s. less

Liverpool; bichromate of potash, $4\frac{1}{4}$ d. nett, for Scotch and sh deliveries (for export, $4\frac{1}{4}$ d. nett f.o.b. Glasgow); bichromate da, $3\frac{3}{4}$ d. nett, for Scotch and English deliveries (for export, $3\frac{1}{4}$ d. f.o.b. Glasgow); chlorate of potash $8\frac{1}{4}$ d. less 5% Liverpool; nitrate da 8s. 6d. to 9s.; sulphate of ammonia, spot, £13. f.o.b. Leith; amoniac, first and second white, £37. and £35. less $2\frac{1}{2}$ % any port; ate of copper, £16. 7s 6d., less 5% Liverpool; paraffin scale, hard oft, $1\frac{3}{4}$ d. per lb; paraffin wax 120° semi-refined $2\frac{3}{4}$ d.; paraffin (naphtha) $3\frac{3}{4}$ d. a gallon; paraffin oil, burning, $4\frac{1}{4}$ d. to $5\frac{1}{4}$ d., at s, according to quality, for Scotch buyers (English sales about to 1d. lower); ditto (lubricating) £865° £3. 10s. to £3. 15s., 885° s. to £5. 15s., and 890/895° £5. to £6. 10s. Week's imports of ugar at Greenock were 21,789 bags.

Reports of Companies.

DIVIDENDS.

UNG'S PARAFFIN OIL CO.—At the last meeting of this company dividend was declared. Sir James King, who presided, said the ution in the prices of products sold amounted to £72,000. This was lessened by £30,000. in improvements and lower working es. The board anticipated that there would next year be further mies amounting to £30,000.

E COLORADO NITRATE CO., LTD.—The directors of this com- have declared a dividend of 3 per cent., payable on the 30th inst , ng, with the 3 per cent. paid December 31 last, 6 per cent. for the ending June 30, 1893.

R LIVERPOOL NITRATE CO., LTD.—In their report the directorate mended and have declared a dividend of $12\frac{1}{2}$ per cent., payable inst., making with the $7\frac{1}{2}$ per cent. paid on December 31 last, r cent. for the year ending June 30, 1893.

New Companies.

ncashire Malt Vinegar Co., Ltd.—CAPITAL £10,000. in shares each. This company has been formed to take over the business Lancashire Vinegar Co., now carried on at Radcliffe, Lancashire, o manufacture and deal in vinegar and sauces, &c. The sub- s to the memorandum of association are:—D. Astley, 50, -street, Radcliffe, confectioner; H. E. Shaw, Boar's Head, liffe, farmer; J. Lomax, 19, Victoria-street, Radcliffe, engineer; Holden, Bury, traveller; J. Ellsey, 14, Cross-street, Radcliffe, r; J. T. Smith, 31, Leed-street, Radcliffe, chemist.

Knowles and Co., Ltd.—CAPITAL £100,000. in shares of £10.

This company has been formed with a view to carrying on the ess of bleachers, dyers and calico printers, finishers, &c. The rbers to the memorandum of association are:—S. Knowles, mount, Tottington, near Bury, calico printer; J. Knowles, er Hill, Tottington, calico printer; W. S. Forbers, Singleton, er, Higher Broughton, calico printer; R. D. Knowles, Tottington, r printer; S. Knowles, junr., Tottington, calico printer; F. K. erthy, Whitefield, near Manchester, married woman; A. E. , Bury, widow.

The Patent List.

is list is compiled from Official sources in the Manchester ical Laboratory, under the immediate supervision of George avis and Alfred R. Davis, who report professionally upon the of Chemical Patents.

APPLICATIONS FOR ENGLISH LETTER PATENTS.

ovement in Explosives. E. Kubin. 11,502. June 12.
Consuming Furnaces. J. Robson. 11,560. June 13.
ating Nickel Sulphide from Nickel and Copper Ores. W. P. Thomp- 11,581. June 13.
atus for Softening and Purifying Liquors. C. Heintz. 11,585. June
ved Apparatus for the Electrolysis of Water. C. J. Yarnold. 11,610.
ne 13.
cing Fast Black on Fibrous Substances. O. P. Amend. 11,634.
ne 13.
ving Printing Ink from Waste Paper. J. L. T. H. Horst. 11,635.
ne 13.
sives. A. V. Newton. 11,645. June 13.
ectants. I. S. McDougall and J. T. McDougall. 11,679. June 14.
Consumer. J. Robinson. 11,690. June 14.
Consuming Appliance for Steam Generators. J. H. Cribb and H. Hooke. 11,691. June 14.
elling Bricks and Tiles. L. Claas and J. Boardman. 11,699. June 14.

Preparing Metal Plates for Galvanising, etc. Davies Bros. and Co., Ltd., and E. Davies. 11,703. June 14.
Improved Disinfectants. G. A. L. Banbury and A. G. Witherby. 11,723. June 14.
Improved Paint. W. Chidlock. 11,727. June 14.
Paint Mixers. G. F. Relfern. 11,730. June 14.
Explosives. A. V. Newton. 11,738. June 14.
Improved Mode of Producing Nitrogen Compounds. A. V. Newton. 11,740. June 14.
Improvements in the Production of Soda. R. Campion. 11,797. June 15.
New Process for Manufacturing Manures. H. E. Newton. 11,804. June 15.
Improved Sulphur Candles. C. T. Kingzett. 11,807. June 15.
Grinding Salt. G. H. Greenhough and W. T. Wright. 11,849. June 16.
Increasing the Illuminating Power of Coal Gas. J. B. Craig and D. Hancock. 11,871. June 16.
Producing Colours on Fibres. H. E. Newton. 11,891. June 16.
New Dyestuffs. H. E. Newton. 11,892. June 16.
Production of Azo Colours. T. R. Shillito. 11,902. June 16.
Improvements in Refining Sugar. P. Lebaudy. 11,913. June 17.
Improvements in the Manufacture of Sugar. J. E. Pellegrini. 11,957. June 17.
Treating the Waste from Gas Liquor. H. W. Crowther. 11,964. June 17.
Sulphate of Lead Pigment. A. Macdonald. 11,972. June 17.
Improved Apparatus for the Electrolysis of Water. Siemens Bros. and Co., Ltd., and E. F. A. Oback. 11,973. June 17.

GERMAN PATENTS period ending JULY 1, 1893.

Specially abstracted by Dr. H. Zereiner, civil engineer, the Patent Office, 20 Eichendorffstrasse, Berlin, N., for the Chemical Trade Journal. Dr. Zereiner is willing to at once protest against the grant of such new Patents as may collide with the interests of subscribers.

- 12 M. 8,299. Preparation of Tanning Materials. Dr. A. Mitscherlich, Freiburg i/B.
- 12 R. 7,679. Preparation of Phosphorus. Dr. Arnold, Rassel i/Bern.
- 75 C. 4,280. Electrolytical Apparatus. T. Craney.
- 75 St. 3,430. Obtaining Ammonia from Organic Nitrogen Compounds. Dr. L. Sternberg, New Jersey.
- 12 H. 12,809. Preparing Acids of Creosote, Guaiacol and Cresol. (Addition to patent D. 5,245.)
- 75 G. 7,680. Obtaining Clean Sulphocyanic Acid from Sulphate of Ammonium Mother Liquors. C. von Grabowsky, Eisleben.
- 22 F. 6,604. Preparation of Dinitrodioxydiphenylmethane and Dinitro-diethoxydiphenylmethane. (Addition to patent F. 6,577.)
- 25 F. 6,663. Preparing $\beta_1 \beta_4$ Naphthylendiamine. Meister, Lucius, and Bruning, Höchst a M.
- 22 G. 7,863. Preparation of Basic Colouring Matters of the Triphenyl-methane Series from Dichlorbenzaldehyde. Gesell für Chemical Industry, Basel.
- 12 F. 6,490. Manufacture of Iodosobenzoic Acid. (Addition to patent No. 68,574.)
- 12 H. 12,815. Halogen and Amidoacetophenol Derivatives. Dr. von Heyden, Dresden.
- 12 H. 13,216. Preparation of pure Guaiacol. Dr. Heyden, Dresden.
- 22 F. 5,668. Preparation of $\alpha_1 \alpha_4$ Amidonaphthol α_2 sulpho acid F Bayer and Co., Elberfeld.
- 22 F. 6,185. Preparation of α_1 -Naphthylamine- β_1 -Sulpho Acid from α -Naphthylamine by Aromatic Amidosulpho Acids. F. Bayer and Co., Elberfeld.
- 22 F. 6,264. Manufacture of Naphthazarine. F. Bayer and Co., Elbersef'd.
- 22 L. 7,708. Basic Blue Colours from Dyalkyl- μ -amidophenol. (Addition to patent L. 6,378.)
- 75 H. 12,872. Purifying the Lyes of Alkaline Aluminates. P. L. Hulin, Frankreich.
- 22 B. 14,450. Manufacture of Auramine. (Addition to patent, No. 53,614.)
- 22 C. 3,630. Preparation of Polyazo Colouring Matters which contain $\alpha_1 \alpha_1$ Amidonaphthol $\beta_2 \beta_3$ Disulpho Acid. L. Cassella and Co., Frankfurt a/M.
- 22 C. 3,916. Preparation of Triazo Colouring Matters from Amido-naphthol Disulpho Acid. (Addition to patent No. 6,361.)
- 22 D. 5,661. Preparation of Polyazo Colouring Matters from Dioxy-diphenylmethane and of Condensation Products of Formaldehyde and Benzidine. L. Durande and Co., Elsass.
- 22 F. 6,332. Manufacture of α_1 Naphthylamine- β_1 Sulpho Acid from α -Naphthylamine by Aromatic Amido Sulpho Acids. (Addition to patent F 6,185.)

Gazette Notices.

PARTNERSHIPS DISSOLVED.

J. WHITAKER, E. BRIGGS, C. BRIGGS, F. WHITEHEAD, J. BRIGGS, AND A. BRIGGS, Leeds, dyers and finishers, under the style of Whitaker Bros. and Co., as far as regards C. Briggs.
G. LEATHER and W. H. HORN, paper stock merchants, Liverpool, under the style of Leather, Horn, and Co.

BANKRUPTCY ACTS, 1883 and 1890.

Receiving Order.

HUDSON, SAMUEL, Wolverhampton, drysalter and dealer in oils and colours.

Adjudications.

BRACHER, W. J., Eastleigh, oil and colour merchant.

HUDSON, SAMUEL, Wolverhampton, drysalter and dealer in oils and colours.

IMPORTS OF CHEMICAL PRODUCTS

AT

THE PRINCIPAL PORTS OF THE UNITED KINGDOM.

LONDON.														
Week ending June 17th.														
Acetate of Lime—			Holland,	7	R. Morrison & Co.	Orchella			France,	47 pkgs.	Prop. Bull Wf.	Painters' Colours—		
France,	526 pkgs.	H. Lorenz	Germany,	7	Phillipps & Graves	Saffron			Spain,	1 pkge.	B. & N. Wf. Co., Ltd.	E. Indies,	8 pkgs.	L. & I. D. Jt. Co.
Alkali—			"	2	L. & I. D. Jt. Co.	Tanner's Bark			France,	35 t.	Baxter & Hoare	Germany,	13	H. Lambert
France,	550	Arnati & Harrison	Italy,	10	A. & M. Zimmermann	Natal, Turmeric			E. Indies,	108	A. & W. Nesbitt	"	1	M. Bensch
"	106	P. Hecker & Co.	Chloride of Lime—			Dyestuffs (otherwise undescribed)			"	124	L. & I. D. Jt. Co.	Holland,	20	C. S. Lovell
Alum—			France,	24 pkgs.	Mead, Son & Co.	Farina—			Germany,	2 pkgs.	Craven & Co.	"	67	Flageollet & Co.
Holland,	182 pkgs.	Ohlenschlager Bros.	Cream of Tartar—			Holland,	50 pkgs.	Ohlenschlager Bros.	"	100	Seaward Bros.	"	10	Hernu, Peron & Co.
Antimony—			Italy,	24 pkgs.	B. Jacob & Sons	Glucose—			U. States,	450 pkgs.	450 c. A. Boake, Roberts & Co.	U. States,	1	Taylor Bros.
Italy,	25 t.	Novelli & Co.	"	23	Howards & Sons	Parafrin Wax—			"	730	880 Page, Son & East	Holland,	5	Phillipps & Graves
France,	50	J. Bamber	France,	19	B. & F. Wf. Co., Ltd.	Phosphate Rock—			"	500	500 G. Hedges & Son	Belgium,	35	T. Palmer
"	2	B. & F. Wf. Co., Ltd.	Spain,	2	M. Ashby, Ltd.	Pitch—			"	597	1,500 L. Sutro & Co.	Germany,	7	Craven & Co.
Australia,	27	E. W. Bastow & Co.	France,	10	W. C. Bacon & Co.	Potassium Bichromate—			"	125	540 L. Norman & Co.	"	16	Phillipps & Graves
E. Indies,	11	Pillow, Jones & Co.	"	5	C. F. Gerhardt J. L. Lyon & Co.	Potassium Carbonate—			U. States,	1,226	Wyllie & Gordon	Austria,	125	J. Owen
France,	7	Vivian, Younger & Co.	"	15	E. W. Carling & Co.	Potassium Sulphate—			France,	285	A. Hunter & Co.	U. States,	1	Smelliet & Co.
Australia,	30	L. & I. D. Jt. Co.	Holland,	2	Middleton & Co.	Pumice Stone—			Belgium,	143	T. Farmer & Co.	Germany,	53	T. H. Lee
Asbestos—			Dyestuffs—			Pyrites—			"	40 cks.	G. Steinhoff & Sons	"	40 cks.	G. Steinhoff & Sons
U. States,	£34.	Gt. Mount Collieries Co.	Anthracene			Quartz—			"	100	W. Johnston & Co., Ltd.	Paraffin Wax—		
"	270	H. Lambert Phillipps & Graves	France,	85 pkgs.	Burt, Boulton & Co.	Resin—			U. States,	3,814 pkgs.	J. H. Usnar & Co.	Phosphate Rock—		
Holland,	9	Tingle, Jacobs & Co.	Italy,	791 pkgs.	B. Jacob & Sons	Soda—			"	100 brls.	L. & N. W. R. Co.	Belgium,	31 t.	J. Alexander
Italy,	80	L. & I. D. Jt. Co.	"	204	Thames S. T. & L. Co., Ltd.	Sodium Acetate—			"	180	Odams Chemcl. Manure Co.	"	180	Odams Chemcl. Manure Co.
Barium Chloride—			Argols			Sodium Carbonate—			"	66	Anglo-Contl. Guano Wks.	U. States,	1,226	Wyllie & Gordon
Germany,	23 pkgs.	Petri Bros.	Cochineal			Sodium Sulphate—			"	285	A. Hunter & Co.	France,	285	A. Hunter & Co.
Barytes—			Canaries,	15 pkgs.	G. S. Bruce	Starch—			"	143	T. Farmer & Co.	Belgium,	143	T. Farmer & Co.
Belgium,	53 cks.	Burrell & Co.	"	10	Swanston & Co.	Sulphur—			"	150	830 Prop. Scott's Wf.	Tea—		
"	20	P. Jantzen	"	17	Sperling & Williams	Urea—			"	500	500 J. Barber & Co.	Wool—		
Germany,	70	Magee, Taylor & Co.	"	5	Johnson, Hicks & Co.	Zinc—			"	750	750 Devitt & Hett	Wool—		
"	21	A. Thumann & Co.	Cutch			Wool—			"	25	137 L. & I. D. Jt. Co.	Wool—		
"	17	H. Lambert	Rangoon,	150 pkgs.	Elkan & Co.	Wool—			"	4,520	8,013 R. G. Hall & Co.	Wool—		
Bromide of Iron—			Extracts			Wool—			"	2,700	2,700 Fellows, Morton & Co.	Wool—		
Germany,	27 pkgs.	A. & M. Zimmermann	France,	48 pkgs.	Carey & Sons	Wool—			"	600	600 Tagant & Co.	Wool—		
Caoutchouc—			"	535	A. J. Humphrey	Wool—			"	100	100 Prpr. Sun Wf.	Wool—		
Germany,	3 c.	L. & I. D. Jt. Co.	Germany,	7	T. H. Lee	Wool—			"	150	150 Prpr. Sun Wf.	Wool—		
Cape,	7	"	"	30	Thames S. T. & L. Co., Ltd.	Wool—			"	100	100 Prpr. Sun Wf.	Wool—		
Zanzibar,	32	"	Canada,	80	A. J. Humphrey	Wool—			"	100	100 Prpr. Sun Wf.	Wool—		
U. States,	70	Chautard & Co.	Denmark,	18	A. F. White & Co.	Wool—			"	100	100 Prpr. Sun Wf.	Wool—		
France,	23	Mory & Co.	"	20	Perkins & Homer	Wool—			"	100	100 Prpr. Sun Wf.	Wool—		
E. Indies,	100	Flageollet & Co.	France,	142	Prop. Chmbln's Wf.	Wool—			"	100	100 Prpr. Sun Wf.	Wool—		
"	96	Vokins & Co., Ltd.	Austria,	400	A. J. Humphrey	Wool—			"	100	100 Prpr. Sun Wf.	Wool—		
Madagascar,	96	Jackson & Till	Fustic			Wool—			"	100	100 Prpr. Sun Wf.	Wool—		
"	80	Hammond & Co.	Gambler			Wool—			"	100	100 Prpr. Sun Wf.	Wool—		
France,	250	Prop. Bull Wf	E. Indies,	397 pkgs.	Beresford & Co.	Wool—			"	100	100 Prpr. Sun Wf.	Wool—		
P. E. Africa,	10	L. & I. D. Jt. Co.	"	147	S. Barrow & Bro., Ltd.	Wool—			"	100	100 Prpr. Sun Wf.	Wool—		
Castor Oil—			"	49	Brinkmann & Co.	Wool—			"	100	100 Prpr. Sun Wf.	Wool—		
France,	56 brls.	J. Greig	"	252	R. & J. Henderson	Wool—			"	100	100 Prpr. Sun Wf.	Wool—		
E. Indies,	69 pkgs.	Ross & Deering	"	5	E. Boustead & Co.	Wool—			"	100	100 Prpr. Sun Wf.	Wool—		
Belgium,	30 brls.	Burrell & Co.	Indigo			Wool—			"	100	100 Prpr. Sun Wf.	Wool—		
E. Indies,	66 cks.	Cayzer, Irvine & Co.	E. Indies,	7 cts.	Arbuthnot, Latham & Co.	Wool—			"	100	100 Prpr. Sun Wf.	Wool—		
Italy,	58 brls.	J. Dards	"	14	R. von Glehn & Sons	Wool—			"	100	100 Prpr. Sun Wf.	Wool—		
"	19 cs.	Capt. Harding	Holland,	3 cs.	Escombe Bros. & Co.	Wool—			"	100	100 Prpr. Sun Wf.	Wool—		
Caustic Potash—			Myrabolams			Wool—			"	100	100 Prpr. Sun Wf.	Wool—		
France,	20 drs.	Spies Bros. & Co.	E. Indies,	1,366 pkgs.	Baxter & Hoare	Wool—			"	100	100 Prpr. Sun Wf.	Wool—		
"	70	Carey & Sons	"	343	Benecke, Souchay & Co.	Wool—			"	100	100 Prpr. Sun Wf.	Wool—		
"	105 c.	F. W. Berk & Co., Ltd.	"	1,054	J. Graves	Wool—			"	100	100 Prpr. Sun Wf.	Wool—		
Germany,	60	F. Boehm	"	342	L. & I. D. Jt. Co.	Wool—			"	100	100 Prpr. Sun Wf.	Wool—		
Chemicals (otherwise undescribed)			"	341	W. Shellcott	Wool—			"	100	100 Prpr. Sun Wf.	Wool—		
Germany,	54 pkgs.	£8. T. H. Lee	Wool—			Wool—			"	100	100 Prpr. Sun Wf.	Wool—		
"	99	A. & M. Zimmermann	Wool—			Wool—			"	100	100 Prpr. Sun Wf.	Wool—		
"	102	T. Farmer & Co.	Wool—			Wool—			"	100	100 Prpr. Sun Wf.	Wool—		

Stearine—

France, 114 bgs. G. Boor & Co.
Belgium, 10 W. Meyerstein & Co.

Sulphur—

Italy, 20 t. G. Boor & Co.
" 30 A. Hughes
" 22 Galbraith, Pembroke & Co.
" 25 C. Vincent
" 3 Hopcraft & Co.
" 13 F. C. Devon & Co.

Tallow—

Sydney, 212 cks. Hoare, Wilson & Co.
" 50 Goad, Rigg & Co.
" 253 Phillips & Graves
" 55 N. Z. L. & M. A. Co.

Queensland, 124 A. B. Curtis & Co.
N Zealand, 274 R. Brooks & Co.

" 124 Nelson Bros.
" 411 J. Graves
" 4 Flack, Chandler & Co.

Queensland, 23 Dyster, Nalder & Co.
" 340 Anning & Cobb
" 60 A. B. Curtis & Co.

U. States, 18 Beck & Pollitzer
Holland, 6 Phillips & Graves

Gibraltar, 34 J. Graves
Sydney, 453 A. B. Curtis & Co.

" 637 Pillow, Jones & Co.
" 131 Sollas & Sons

France, 50 Arnati & Harrison
U. States, 75 W. Balchin
Belgium, 6 G. Haller & Co.

" 196 Pillow, Jones & Co.
Queensland, 43 A. B. Cobb & Co.

" 117 L. & I. Dk. Co.
N. Zealand, 593 N. Z. L. & M. A. Co.

" 52 Phillips & Graves
" 10 Low, Sons & Bedford

" 3 Culverwell, Brooks & Co.
Tar—

Germany, 200 brls. W. Beard & Son

Tartaric Acid—

France, 40 pkgs. Patry & Pasteur

Holland, 14 B. & F. Wf. Co., Ltd.

France, 4 F. C. Devon & Co., Ltd.

Italy, 29 B. & F. Wf. Co., Ltd.

Holland, 20 Middleton & Co.

Tin Oxide—

Austria, 15 pkgs. W. Pope & Co.

Ultramarine—

Belgium, 11 cks. T. Jordan & Co.

Holland, 5 brls. C. J. Capes & Co.

Belgium, 9 pkgs. W. Harrison & Co.

Varnish—

U. States, 41 pkgs. Taylor Bros.

" 5 Smellie & Co.

" 5 Beck & Pollitzer

White Lead—

Germany, 11 pkgs. Spies, Bros. & Co.

" 9 cks. Leach & Co.

" 12 J. Lyon & Co.

Germany, 32 Colthurst & Harding

Holland, 14 Phillips & Graves

Germany, 21 M. Ashby, Ltd.

" 42 pkgs. S. H. Willoughby

Zinc Oxide—

U. States, 100 brls. M. Ashby, Ltd.

Holland, 50 W. Balchin

" 150 H. Lambert

Germany, 1 cs. F. Pryor

Holland, 23 cks. Soundy & Sons

LIVERPOOL.

Week ending June 15th.

Acetate of Lime—

New York, 783 bgs.

Alkali—

Hamburg, 10 cks.

Antimony—

Valparaiso, 360 bgs. Brownells & Co.

Antofagasta, 122 Hainsworth, Watson, & Co.

Antimony Salts—

Rotterdam, 2 cks.

Barytes—

Antwerp, 23 cks.

Borate of Lime—

Antofagasta, 1,500 sks. Cockbain, Allardice, & Co.

Caoutchouc—

Havre, 113 pkgs. 10 cks. Cunard S. S. Co., Ltd.

Castor Oil—

Calcutta, 1,316 cs. Ralli Bros.

Cellulose—

Hamburg, 36 bls.

Chemicals (otherwise undescribed)

Hamburg, 1 ck.

Chloroform—

In transit, 2 cs. Cunard S. S. Co., Ltd.

Colours—

Rotterdam, 74 cks. 14 cs. 1 pkg.

Cream of Tartar—

Barcelona, 2 hds.

Dyestuffs—

Algarobilla, Coquimbo, 98 bgs. Palassie & Leete

Argols

Patras, 28 cs. M. D. Frangopulo & Co.

Oporto, 30 cks. German Bank, London

Cochineal

Teneriffe, 8 bgs. G. S. Bruce

" 15 Swanton & Co.

" 3 Widow, Duranty, & Son

Cutch

Rangoon, 3,388 bxs.

Divi Divi, Hamburg, 48 bgs.

New York, 752 Lowenthal & Raelton

" 133 Widow, Duranty, & Son

Extracts

Fiume, 356 brls. De Clermont & Donner

" 15 Oak Extract Co., Ltd.

Baltimore, 35 F. Ree

New York, 10

Bordeaux, 50 cks.

Antwerp, 21

New York, 50 bxs. 22 brls.

Trieste, 6¼ t. J. Fletcher, jun., & Co.

Savanna, 1,800 lbs. G. H. Muller & Co.

Carthage, 3,556 ps. Fruhling & Goschen

" 1,461 Widow, Duranty, & Son

Vera Cruz, 2,022 lbs.

Tampico, 7,361 stks.

Gambier, 665 bls.

Singapore, 150 t.

Logwood, 240 Widow, Duranty, & Son

Gonaives, 150 t.

Myrabolams, Calcutta, 275 bgs. D. Sassoon & Co.

" 181 Ralli Bros.

Saffron, Valencia, 1 cs.

Sumac, Palermo, 600 bgs. 270 brls.

Turmeric, Calcutta, 998 bgs. Ralli Bros.

Valonia, Patras, 2 bgs. G. E. Speropulo

Farina—

Hamburg, 100 bgs.

Glucose—

Hamburg, 244 cks. 50 bgs.

Baltimore, 197 bls.

New York, 888 brls.

Rouen, 11 cks. Co-op. W'sale Society, Ltd.

Iodine—

Valparaiso, 41 brls.

Limestone—

Antwerp, 4 crts. 1 c. 1 fm. J. T. Fletcher & Co.

Manganese—

Hamburg, 73 bgs.

Yokohama, 259 t.

Kobe, 103 1,046 bls.

Carrizal, quantity.

Mineral White—

Trieste, 200 bgs. Schroder & Co.

" 100 F. Parisi

Naphtha—

Hamburg, 10 dms.

Ochre—

Rouen, 50 cks. Co-op. W'sale Society, Ltd.

Paint—

Hamburg, 6 cks.

Boston, 10 cs. Leech & Co.

Paraffin Scale

Baltimore, 64 brls.

Phosphate—

Montreal, 290 t. A. Benson

Plumbago—

New York, 5 brls.

Potash—

Hamburg, 2 cs.

Montreal, 25 brls. C. H. Cunningham

Boston, 100 kgs.

Rouen, 72 cks. Co-op. W'sale Society, Ltd.

Dunkirk, 2 38 dms.

Rotterdam, 19

Pumice Stone—

Leghorn, 70 crts.

Messina, 50 cs.

Pyrites

Huelva, 1,683 t. Tennants & Co.

" 4,498 Matheson & Co.

Rosin—

Baltimore, 750 brls.

Savannah, 3,011

New York, 1,392

Saltpetre—

Hamburg, 150 kgs. 4 cks.

Calcutta, 1,252 bgs.

Soapstone—

Bordeaux, 200 bgs. G. G. Blackwell

Sodium Nitrate—

Pisagua, 9,786 bgs.

Sulphur—

Huelva, 1,095 t. Matheson & Co.

Tallow—

Baltimore, 200 tcs.

Rouen, 215 bgs. R. J. Francis & Co.

Zarate, 314 cks. J. Nelson & Sons, Ltd.

B. Ayres, 188

New York, 1,328 tcs.

Boston, 23 45 hds. 19 cks.

Rouen, 23 cks. 213 bgs. Co-op. W'sale Society, Ltd.

Tartar—

Bordeaux, 8 cks.

Tartaric Acid—

Rotterdam, 10 cks.

Bordeaux, 4

Tincal—

Calcutta, 376 bgs.

Tin Oxalate—

Rotterdam, 3 cks.

Turpentine—

Savannah, 2,737 brls. R. Hulme

Ultramarine—

Rotterdam, 4 cks. 21 cs.

Waste Salt—

Hamburg, 90 t. 102 bgs.

White Lead—

Rotterdam, 39 cks.

Zinc Ashes—

Boston, 32 brls.

Zinc Oxide—

Hamburg, 25 cks.

Antwerp, 60 brls.

Rotterdam, 50 O. & H. Marcus

" 45

Zinc Skimmings—

Baltimore, 98 sks.

TYNE.

Week ending June 17th.

Alum Earth—

Hamburg, 35 cks. Tyne S. S. Co.

Asbestos—

Rotterdam, 2 bls. Tyne S. S. Co.

Barytes—

Rotterdam, 63 cks. Tyne S. S. Co.

Colours—

Rotterdam, 1 ck. 1 cs. Tyne S. S. Co.

Cryolite—

Antwerp, 2 brls.

Glucose—

Copenhagen, 250 cks.

Limestone—

New York, 375 brls. Furness, Withy & Co.

Phosphate—

Antwerp, 2 crts. Tyne S. S. Co.

Saltpetre—

Antwerp, 200 t. LangdalesCh'm'c l Co.

Stearine—

Hamburg, 4 cks. Tyne S. S. Co.

Ultramarine—

New York, 62 pkgs. Furness, Withy & Co.

Waste Salt—

Rotterdam, 5 cs. Tyne S. S. Co.

White Lead—

Hamburg, 4 cks.

Zinc Oxide—

Antwerp, 20 brls. Tyne S. S. Co.

GLASGOW.

Week ending June 22nd.

Barium Sulphate—

Antwerp, 503 bgs. 22 cks.

Barytes—

Rotterdam, 68 cks. J. Rankine & Son

Castor Oil—

Antwerp, 140 cks.

Cellulose—

Hamburg, 406 bls.

Chrome Ore—

Ekingik, 1,800 t.

Colours—

Rotterdam, 2 cs. J. Rankine & Son

Dyestuffs—

Antwerp, 6 cks.

Alizarine

Rotterdam, 52 cks. 2 cs.

Aniline

Rotterdam, 10 cks. 3 cs.

Extracts

Antwerp, 3 cks.

Fustic

Rotterdam, 100 bxs.

Rosin—		
New York,	921 brls.	
Saltpetre—		
Hamburg,	61 pkgs.	
Tallow—		
New York,	25 bhd.	
Yarnish—		
New York,	50 brls.	
White Lead—		
Rotterdam,	92 cks.	J. Rankine & Son
Zinc Oxide—		
Antwerp,	25 cks.	
Zinc White—		
Rotterdam,	100 cks.	J. Rankine & Son

HULL.

Week ending June 17th.

Acids—		
Hamburg,	8 cks.	Wilson, Sons & Co., Ltd.
Alkali—		
Flushing,	2 cks.	Wilson, Sons & Co., Ltd.
Antimony Salt—		
Rotterdam,	5 cks.	G. Lawson & Sons
Arsenic—		
Hamburg,	4 cks.	
Barytes—		
Rotterdam,	71 cks.	Hutchinson & Son
Bremen,	45	Tudor & Sons
Antwerp,	103 bgs.	
Chemicals (otherwise undescribed)		
Hamburg,	1 ck.	Wilson, Sons & Co., Ltd.
Dunkirk,	9 27 dms.	"
Antwerp,	24 pks.	"
Carbide Alum—		
Rotterdam,	39 cks.	Hutchinson & Son

Colours—		
Flushing, 8 cs.	29 cks.	Wilson, Sons & Co., Ltd.
Rotterdam,	134 pks.	W. & C. L. Ringrose
"	2 cks.	G. Lawson & Sons
Hamburg,	10 cs.	
Ghent,	7 cks.	Wilson, Sons & Co., Ltd.
Riga,	195	
Bremen,	2	Veltmann & Co.
Antwerp,	5	Bailey & Leatham
Danzig,	10	Wilson, Sons & Co., Ltd.
"	8	
Rotterdam,	25 cks.	17 cs. Hutchinson & Son
Amsterdam,	1 kg.	W. & C. L. Ringrose
Antwerp,	10 brls.	Wilson, Sons & Co., Ltd.

Dyestuffs—

Alizarine		
Rotterdam,	52 pks.	W. & C. L. Ringrose
"	11 cs.	52 cks. Hutchinson & Son
Madder		
Rotterdam,	1 ck.	W. & C. L. Ringrose
"	8	Hutchinson & Son

Farina—

Harlingen,	1,200 bgs.	
Stettin,	100	Wilson, Sons & Co., Ltd.
"	600	
Danzig,	100	Wilson, Sons & Co., Ltd.

Glucose—

Stettin,	25 cks.	Wilson, Sons & Co., Ltd.
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Limestone—

Antwerp,	2 pks.	Wilson, Sons & Co., Ltd.
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Manure—

Ghent,	800 bgs.	100 t. Hart Bros.
Lysekil,	1,196	

Mica—

Christiania,	3 cs.	Wilson, Sons & Co., Ltd.
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Naphthylamine—

Rotterdam,	6 cks.	Hutchinson & Son
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"

"	7	G. Lawson & Sons
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Nitronaphthaline—

Rotterdam,	1 ck.	Elain Bros.
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Phosphate—

Ghent,	816 bgs.	Wilson, Sons & Co., Ltd.
Antwerp,	100 bgs.	Bailey & Leatham

Plumbago—

Hamburg,	17 cks.	Wilson, Sons & Co., Ltd.
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Potash—

Dunkirk,	10 cks.	
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Saltpetre—

Hamburg,	4 cks.	
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Soap—

Flushing,	1 cs.	Wilson, Sons & Co., Ltd.
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Soda—

Rotterdam,	1 ck.	Hutchinson & Son
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Sodium Acetate—

Antwerp,	10 cks.	Blundell, Spence & Co.
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Tallow—

St. Petersburg,	29 cs.	
Antwerp,	24 pks.	Wilson, Sons & Co., Ltd.

Tar—

St. Petersburg,	5 cks.	Wilson, Sons & Co., Ltd.
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Hamburg,

Danzig,	1 cs.	
"	18 cks.	

Tartaric Acid—

Rotterdam,	6 cks.	Hutchinson & Son
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Ultramarine—

Rotterdam,	4 cks.	Tedd & Son
"	1	
Hamburg,	5 cs.	G. Lawson & Sons

Waste Salt—

Dunkirk,	200 bgs.	Wilson, Sons & Co., Ltd.
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White Lead—

Antwerp,	31 cks.	Bailey & Leatham
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Rotterdam,	20	G. Lawson & Sons
"	27	J. & T. Seddon
"	9	T. F. Chambers & Co.

Zinc Oxide—

Rotterdam,	5 cks.	Hutchinson & Son
"	10	G. Lawson & Sons

GOOLE.

Week ending June 14th.

Caoutchouc—

Boulogne,	4 cks.	
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Dyestuffs (otherwise undescribed)

Boulogne,	12 cks.	1 cs.
Ghent,	2	

Potash—

Calais,	60 dms.	
Dunkirk,	54	

Saltpetre—

Hamburg,	17 cks.	
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Waste Salt—

Hamburg,	264 t.	508 bgs.
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GRIMSBY.

Week ending June 17th.

Caoutchouc—

Hamburg,	4 cs.	
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Chemicals (otherwise undescribed)

Hamburg,	28 pks.	
Antwerp,	65 cks.	

Dyestuffs (otherwise undescribed)

Dieppe,	17 pks.	
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EXPORTS OF CHEMICAL PRODUCTS

OF

THE PRINCIPAL PORTS OF THE UNITED KINGDOM.**LONDON.**

Week ending June 21st.

Acids—		
Huelva,	45 cs.	£120
Shanghai,	15	34
Alkali—		
Cape Town,	16 c.	£9
Algoa Bay,	14	8
Melbourne,	2 t. 2	60
Alum—		
Sydney,	1 t.	£6
Brisbane,	20 kgs.	6
Rio de Janeiro,	106 cks.	73
Rabat,	2 t. 10 c.	15
Ammonia (Liquid)—		
Stockholm,	5 cks.	£15
Rosario,	10 cs.	20
Cologne,	6 c.	36
Hong Kong,	10	33
Hamburg,	5 cyldrs.	12
Adelaide,	10 cs.	19
M. Video,	12	14
Ammonium Carbonate—		
B. Ayres,	1 t.	£30
Danzig,	2 16 c.	67
Paris,	1 15	49
Brisbane,	8 cs.	13
Sydney,	15	19
Ammonium Chloride—		
Cologne,	20 cks.	£98
Samsoun,	1 t. 10 c.	49
Bourgas,	18	28
Galatz,	1 14	37
Paris,	1 15	57

Ammonium Sulphate—

Hamburg,	70 t. 3 c.	£820
Grenada,	10	118
Cullera,	50 12	626
Durban,	15 18	193
Valencia,	51 7	630
Sourabaya,	04 5	1,202
Antigua,	28	342

Arsenic—

Wellington,	1 t.	£16
Lyttelton,	15 c.	12
Sydney,	1	15

Barium Sulphate—

Leghorn,	10 cks.	£40
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Boracic Acid—

Melbourne,	4 cks.	£46
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Borax—

Hamburg,	16 c.	£42
Harlingen,	10 cs.	15
Sydney,	2 t. 10 c.	74
Constantinople,	10	15
B. Ayres,	1 10	45
Port Elizabeth,	2 cs.	8
Brisbane,	10	15
Carbolic Acid—		
Hamburg,	16 cks.	£37
Rotterdam,	5 t.	350
Brisbane,	2 cs. 53 drs.	52
San Francisco,	1	14
Treport,	100	106
Carbon Bisulphide—		
Antwerp,	14 drs.	£56
Caustic Soda—		
E. London,	1 t. 13 c.	£55
Port Elizabeth,	5	6
Braila,	15	135
Galatz,	1	10
Durban,	4	6

Lyttelton,	10 8	98
Melbourne,	11 1	107
Natal,	1 6	47
Rockhampton,	10 18	108
Wellington,	10 2	100
Kobe,	32 8	260

Chemicals (otherwise undescribed)

Mornagas,	6 cs.	£94
E. London,	3 2 cks.	17
Adelaide,	25 2	205
Auckland,	2 kgs.	10
Wellington,	15 pks.	26
Durban,	3 cs.	13
Natal,	4	17
Colombo,	6	40
Brisbane,	9 1 kg.	£16

Chloride of Lime—

Brisbane,	12 cs.	£17
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Citric Acid—

Genoa,	1 t.	£160
Barcelona,	1	153
Rotterdam,	2 c.	17
Hamburg,	1 5 1 kg.	206
Ghent,	1 2	160
Antwerp,	5 2	56
Brussels,	15	120
Paris,	10	80
Calcutta,	1 cs.	9
St. Petersburg,	1 16 21	20 cks. £1,282

Bombay,	2	19
Rosario,	1	10
Montreal,	1	40
Penang,	5	9
Durban,	1 cs.	9
Gutujeffsky,	10	75
Constantinople,	2	17

Coal Products—

Alizarine		
Boston,	20 cks.	£272

Aniline

Rotterdam,	12 drs.	£375
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Aniline Dyes

New York,	15 kgs.	£81
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Aniline Oil

Barcelona,	8 cks.	£100
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Anthracene

Rotterdam,	288 cks.	£1,717
Dusseldorf,	85	400

Benzol

Rotterdam,	66 puns. 142 cks.	12 drs. £1,232
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Hamburg,

Boulogne,	9 cks.	89
"	60	220

Coal Tar Dyes

Boston,	7 pks.	£218
Sydney,	5 cs.	£54

Croosote

Dieppe,	988 brls.	£207
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Naphtha

Boulogne,	50 cks.	£145
Sydney,	13	20
Natal,	20 drs.	11

Naphthaline

Philadelphia,	88 cks.	£120
Antwerp,	9	17
Treport,	47 pks.	61
New York,	34 cs.	98
Auckland,	2	14

Nitro Naphthaline

New York,	5 cks.	£43
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Paraffin Wax

Auckland,	4 tks.	£151
Sydney,	235 cs.	575
Launceston,	20 bgs.	47

Pitch

Sydney,	5 cks.	£14
Antwerp,	637 t.	784
Philadelphia,	842 pks.	254
New York,	250 cks.	150

New York, 1,000 cks. £455	San Francisco, 5 cs. 550 drs. £132	Ammonium Sulphate—	Malta, 21
Bombay, 40 20	Freemantle, 100 300	Demerara, 83 t. 19 c. 3 q. £1,060	Melbourne, 9 pkgs. 9
Philadelphia, 250 runs. 115	Algoa Bay, 19 c. 38	Sourabaya, 170 1 3 1,940	Messina, 96
Aden, 100 drs. 19	E. London, 1 4	Las Palmas, 12 8 159	New Orleans, 52
Aden, 20 runs. 11	Sydney, 200 cs. 220	Hamburg, 100 1,217	Pernambuco, 25
Sydney, 25 brls. 24	Melbourne, 25 75	Valencia, 151 3 1,927	Rouen, 68
Bar Oil	Hobart, 60 55	Arsenic—	St. Petersburg, 450
Tripoli, 26 brls. £15	Launceston, 1 t. 9 53	Calcutta, 1 t. £24	Santa Catharina, 80
Rotterdam, 88 runs. 73 cks. £500	Stettin, 20 cs. 60	Barium Chlorate—	Savanna, 50
Oil Products (otherwise under.)	Soda—	Naples, 2 c. £8	Sydney, 30
Amsterdam, 1 ckr. £12	Cape Town, 1 t. £6	Bleaching Powder—	Tarragona, 30
Sydney, 200 drs. 40	Azores, 1 4	Baltimore, 921 cks. £58	Trieste, 5
Singapore, 25 20	Soda Ash—	Boston, 1,199	Chemicals (otherwise underdescribed)
Super Sulphate—	Lytleton, 10 t. 6 c. £58	Calcutta, 200 cs. £24	Antofagasta, 5 cs. £15
Bordeaux, 41 t. 15 c. £710	St. John's, N.B., 1 t. 13 c. £6	Ghent, 338	Mersyne, 1 t. 8 c. 12
Satin, 10 160	Sodium Arsenate—	Genoa, 168	Galatz, 1 t. 34
Genoa, 7 10 123	Sydney, 2 t. 7 c. £23	Havana, 30 brls. 10	Port of Spain, 2 cs. 14
Batavia, 1 17	Sodium Bicarbonate—	Lisbon, 73	Montreal, 2 q. 60
Marseilles, 10 162	Riga, 10 c. £5	Naples, 515	St. Petersburg, 9 10 320
Venice, 7 17 121	Singapore, 13 3	Rio de Janeiro, 10	Leghorn, 10 18
Finne, 2 5 34	Sodium Carbonate—	Toronto, 6	B. Ayres, 5 10
Wien, 10 8	Algoa Bay, c. £11	Vigo, 167 kgs. £25	Bombay, 3 15 125
cream of Tartar—	Madras, c. 10	Kurracher, 6	Philadelphia, 13 1 308
Cape Town, 2 cs. £13	Sodium Silicate—	Oporto, 6	China Clay—
Victoria, B.C., 1 t. 3 c. 220	Lytleton, 7 t. 17 c. £46	Portland, Or., 21	Bombay, 54 t. 54
Sydney, 2 15 220	Sodium Sulphate—	Rouen, 29	Boston, 580 10 c 10
Adelaide, 5 22	Lytleton, 18 c. £2	Rotterdam, 25	New York, 200 cks. 10
Wien, 1 4 101	Sodium Sulphite—	Boracic Acid—	Chloroform—
Manufactants—	Cape Town, 2 c. £14	Baltic (Stettin), 18 c. £25	Demerara, 2 cs. £18
Auckland, 11 pkgs. £15	Sodium Tartrate—	Yokohama, 1 t. 37	Citric Acid—
Bahia, 4 cs. 10	Melbourne, 5 c. £16	Borax—	Manilla, 2 c. 1 q £18
Singhai, 8 pkgs. 12	Strontium Nitrate—	Baltic (Stettin), 2 t. 16 c. 3 q. £75	Coal Products—
Brisbane, 8 cs. 10	New York, 40 kgs. £50	Rosario, 17 3 30	Aniline Colours
Gonaves, 15 drs. 15	Sulphur—	Vera Cruz, 5 1 8	Constantinople, 16 cs. 12
Calcutta, 15 drs. 15	Newcastle, 40 brls. £31	Antwerp, 7 3 219	New York, 5 cks. 12
Flowers of Sulphur—	Freemantle, 2 t. 10 c. 18	Ghent, 13 19	Shanghai, 25 18
Cape Town, 14 t. 7 c. £157	Lisbon, 62 brls. 158	Ponce, P.R., 5 2 9	Aniline Oil
Algoa Bay, 18 18 212	M. Video, 1 t. 16 c. 23	Cadiz, 1 7 45	New York, 30 dms. 18
Nazare—	Sulphuric Acid—	Hamburg, 2 13 80	Oporto, 1 kg. 10
Riga, 97 t. 8 c. £229	Colombo, 50 cs. £37	Matanzas, 1 12 48	Aniline Salts
Granada, 5 43	E. London, 3 t. 12 c. 25 pkgs. 45	Rotterdam, 11 7 2 338	New York, 98 cks. 144 cs. 16
Dominica, 4 45	Algoa Bay, 8 t. 6 c. £78	Calcium Chloride—	Oporto, 1 kg. 10
Guadeloupe, 178 16 1,885	Penang, 1 5 10 cs 26	Odessa, 14 t. 18 c. £33	Sensol
Barbadoes, 270 3,000	Trini lad, 3 4 12	Carbolic Acid—	Malta, 3 cs. 10
Motril, 222 4 1,998	Superphosphate—	St. Petersburg, 5 t. £300	Pitch
Sulobrena, 484 8 4,356	Riga, 195 t. 6 c. £584	Odessa, 4 c. 3 q. 18	Ibrail, 30 brls. 16
Durban, 10 75	Tartaric Acid—	New York, 3 2 2 126	Vigo, 32
Callera, 1,148 9,187	St. Petersburg, 1 c. 3 kgs. £28	San Juan, 8 25	Marseilles, 455 t. 17 c. 10
Rosen, 20 125	Victoria B.C., 2 11	Marseilles, 6 18 2 452	Tar
Malaga, 20 3 232	Hamburg, 5 23	Rouen, 2 16 176	Honolulu, 50 brls. 10
Mauritius, 35 520	Riga, 2 17	Rotterdam, 10 10 625	Cabenda, 20 10 cks. 1
Antigua, 13 17 155	Sydney, 5 27	Castor Oil—	Demerara, 50 1
Berbaee, 20 205	Auckland, 1 t. 2 101	C. C. Castle, 3 cs. £12	Leghorn, 1
Variale of Lime—	Melbourne, 1 1 94	Cautic Potash—	Sierra Leone, 45 hf. brls. 1
Sydney, 9 t. 11 c. £42	Rosario, 1 10	Brisbane, 9 c. £12	Cobalt Oxide—
Oxalic Acid—	Montreal, 9 48	Montreal, 10 12	Gijon, 3 q. £33
Brisbane, 2 cks. £6	Karachi, 10 cs. 54	Moscow, 7 8	Copperas—
Rotterdam, 4 30	Wellington, 12 64	Naples, 1 t. 56	Callao, 25 brls. £7
Phosphorus—	Cape Town, 1 7	Cautic Soda—	Alexandretta, 5 t. 19 c. 6
Melbourne, 5 c. £50	Tartaric Acid and Ammonium Carbonate—	Amsterdam, 110 dms. £19	Syria, 2 19 c. 6
San Francisco, 5 59	Melbourne, 20 cs. £86	Antwerp, 18	Copper Sulphate—
Potash—	LIVERPOOL.	Bahia, 35	Vigo, 1 t. 2 c. 3 q. £19
Shanghai, 4 cs. £46	Week ending June 21st.	Baltimore, 471 270 brls. 156	Naples, 10 13 3 156
Potash Crystals—	Acids—	Barcelona, 226 124 cks. 906	Bordeaux, 57
Brunels, 19 c. £110	Montreal, 13 c. £48	Bari, 107	Ancona, 4 19 2 80
Toronto, 7 48	Alum—	Bombay, 19	Smyrna, 8 2 7
Potassium Bicarbonate—	S. Catherine, 2 t. 10 c. £15	Boston, 150	Antofagasta, 9 19 3 71
New York, 10 cks. £43	Tripoli, 1 5 7	Brisbane, 15 5 bxs. £19	B. Ayres, 12 14 1 177
Potassium Bichromate—	Galatz, 8 10 48	Catania, 35	Ghent, 14 15 1 235
Lamrio, 1 ckr. £11	Smyrna, 1 15 10	Chicago, 100	Lisbon, 37 17 3 632
Potassium Bromide—	Rhodes, 3 18	Dunedin, 17	M. Video, 12 10 10
Algoa Bay, 2 cs. £10	Melbourne, 3 12	Gala'z, 116	Oporto, 10 2 8
Potassium Cyanide—	Calamata, 1 8 7	Genoa, 110	Syria, 1 8 2 23
Boulogne, 6 pkgs. £56	Seville, 4 20	Hamburg, 38	Marseilles, 195 4 1 3,120
Durban, 1 cs. 6	Alexandria, 5 2 q. 25	La Guayra, 14	Disinfectants—
Singapore, 5 28	Beyrout, 1 30	Leghorn, 126 40 kgs. £18	Calcutta, 19 c. £34
Potassium Iodide—	Alum Cake—	Marseilles, 40	Guanoo—
Bombay, 2 c. £85	Calcutta, 6 t. 2 c. 3 q. £19	Montreal, 100	Valencia, 60 t. £153
Melbourne, 1 64	Aluminous Cake	Naples, 70	Gypsum—
Pyrogallie Acid—	Calcutta, 10 t. 5 c. 3 q. £15	New York, 378 150 brls. £130	New York, 34 t. 17 c. £130
Brisbane, 2 cs. £9	Aluminoferrie—	Odessa, 179	Lime—
Sulleylic Acid	Quebec, 5 t. 10 c. £16	Para, 30	C. C. Castle, 2 t. 12 c. 2 q. £14
Brisbane, 2 cs. £29	Ammonium Carbonate—	Rio Grande do Sul 150	Demerara, 100 pns 5 cks.
Salt Cake—	Rotterdam, 13 c. 1 q. £19	Seville, 10	Limestone—
Ghent, 30 t. £30	Copenhagen, 13 3 50	Shanghai, 4	New York, 2 cs. 10 c. 10
Norroping, 200 300	Stettin, 3 2 50	Toronto, 35	Magnesia—
Saltetre—	Venice, 1 t. 29	Valencia, 10	Pernambuco, 2 cs. 8
Santos, 13 t. 8 c. £301	Ammonium Chloride—	Yokohama, 100	Paris, 46
Melbourne, 1 22	Trebizonde, 7 c. 2 q. £12	Algoa Bay, 7	Trieste, 1
Vigo, 5 13 115	Trieste, 1 t. 1 34	Archangel, 7	Magnesium Citrate—
New York, 13 15 279	Marseilles, 13 1 20	Batavia, 20	Havana, 7 cs. 10
Bahia, 2 17 66	Antwerp, 7 1 8	Carupano, 10	Magnesium—
Bahia, 10 13	Ammonium Chloride—	Colombo, 14	Marseilles, 10 cks. 1 cs. 1
Lisbon, 11 10 233	Trebinde, 7 c. 2 q. £12	Corfu, 20	Philadelphla, 1 1 cs. 1
Hamburg, 4 18 110	Trieste, 1 t. 1 34	E. London, 180 20	Manure—
Rio de Janeiro, 14 6 322	Marseilles, 13 1 20	Fiume, 180	St. Malo, 230 t. 4 c. 3 q. £454
	Antwerp, 7 1 8	Hio, 50	St. Nazaire, 260 5 c. 3 q. 999
			Valencia, 50 9 1 114
			Calcutta, 1 8 2 174

Metallic Sodium—

Rotterdam, 3 t. 14 c. 3 q. £505

Muriate of Lime—

Sydney, 9 t. 12 c. £22

Nitrate of Iron—

Montreal, 7 t. 6 c. 1 q. £23

Oxalic Acid—

Oporto, 14 c. 2 q. £18

Paint—

Cameroons, 34 kgs.

Caracas, 45

Cardenas, 2 cks.

Colon, 121 10 12 cs.

Havana, 25 brls. 30 dms.

Hobart, 1

Manila, 1,000 16

Montreal, 10 1 4

Oporto, 1

Seville, 26

Sydney, 90

Tonala, 2 2

Zacatecas, 2

Calcutta, 60

Hamburg, 14

Lagos, 50

Mayaguez, 11

St. Domingo, 4

San Francisco, 13 brls.

San Juan, 1 4

San Sebastian, 20 5

St. Thome, 5

Sherbro, 40 6

Valparaiso, 6

Vera Cruz, 2

Painters' Colours—

Akassa, 32 kgs.

Bahia, 1 tc. 65 2 cks. 7 cs. 5 brls.

Baltimore, 141

Bathurst, 1

Bombay, 1

B. Ayres, 345 182

Callao, 20 40 11 65

Constantinople, 762

Corfu, 2

Hong Kong, 200

Honolulu, 2

La Libertad, 16 4

Lisbon, 2 4 17

Manaos, 65 10 88

Manila, 88

New York, 1 1 450

Para, 264 1 1 55

Ponce, 9

Rio de Janeiro, 43 1 1 dm.

Santa Catharina, 90 42

Toronto, 16

Valleyfield, 5

Valparaiso, 34 39 2

Yokohama, 1

Amsterdam, 6 5 5

Antwerp, 7

Benin, 19

Bordeaux, 50

Cabenda, 12

Calcutta, 40

Colon, 2

Kingston, Jam., 106 2

Leghorn, 56

Mayaguez, 3 brls.

Melbourne, 40

Montreal, 25

Odessa, 67

Old Calabar, 4 pkgs. 2 12

Oporto, 7 4 1

Paris, 30

Philadelphia, 138

Port au Prince, 50

Rotterdam, 22 3 bgs.

St. John's, 3 13

Volo, 2

Paraffin Wax—

Venice, 10 cs.

Boston, 50

Phosphorus—

Vera Cruz, 1 cs. £11

B. Ayres, 1 c. 3 q. 20

Plumbago—

Mersyne, 1 ck.

Potash—

B. Ayres, 6 c. £10

Potassium Bichromate—

Bari, 17 c. 3 q. £33

Potassium Carbonate—

Boston, 4 t. £104

Potassium Chlorate—

Copenhagen, 10 c. £28

San Juan, 2 t. 112

Messina, 18

New York, 7 5 414

Catania, 2 10 30

Havana, 2 6 120

Naples, 4 6 243

Moscow, 1 20 78

Kobe, 5 280

Mexico, 2 7

Rio de Janeiro, 1 56

St. Petersburg, 36 5 2,210

Gutujewski, 25 10 1,512

Rotterdam, 6 10 365

Genoa, 6 9 387

Hamburg, 1 10 112

B. Ayres, 10 37

Hiogo, 15 812

Potassium Silicate—

Amsterdam, 1 t. 3 c. 3 q. £6

Rosin—

Hamburg, 55 brls.

Salt—

Antwerp, 220 t.

Boma, 10

Brass, 25

Brisbane, 400

B. Ayres, 25 17 c.

Buguma, 25

Calcutta, 250

Cameroons, 60

Copenhagen, 677

Demerara, 64 10

Fernando Po, 5

Ghent, 250

Iceland, 125

Landana, 14 12

Melbourne, 142 12

M. Video, 10 16

Para, 100

Pernambuco, 12

Puget Sound, 200

Quebec, 1,233

Rio de Janeiro, 15

Rotterdam, 306

S. John's, N.B., 556

San Juan, 61 10 75 cs.

Santos, 3 5

Savannah, 400

Seattle, 283 5

Tacoma, 267 17

Trinidad, 27 15

Archangel, 250

Boston, 100

Cabenda, 8

Canada, 200

Cape Town, 1

Gefle, 500

Halifax, 930

Lagos, 209 8

Montreal, 486

New York, 10

San Francisco, 191

Terbirske, 200

Vardo, 581

Saltcake—

Wellington, N.Z., 2 t. 3 c. £6

Saltpetre—

Venice, 7 c. 3 q. £8

B. Ayres, 4 t. 86

Carthage, 2 5 46

Para, 2 10 60

Sheep Dip—

Punta Arenas, 41 cks. 3 kgs. £225

Boston, 8 c. 9

New Orleans, 7 t. 3 147

B. Ayres, 2 5 62

Soap—

Accra, 108 bxs.

Addah, 40

Akassa, 84

Axim, 20

Barbadoes, 900

Bathurst, 62

Belize, 150

Bermuda, 50 cs.

Boma, 15

Bombay, 10 7

Cabenda, 100

Cameroons, 270

C. C. Castle, 58

Cape Lopez, 30

Christiania, 220

Clarence, 58

Colon, 550

Curacao, 580

Demerara, 2,860 5

Dry Harbour, 100

Ghent, 10

King's Cane, 4

Kingston, Jam., 220

Limassol, 1

Lisbon, 1

Loango, 25

Madras, 1

Matadi, 100

Monrovia, 6

Montreal, 200 50 cks.

New Orleans, 200

New York, 175 36 310 brls. 50 hf.-brls.

Opobo, 1,120

Piræus, 1 5 bdls.

Quebec, 1

Rangoon, 700 41

St. Lucia, 40

Samarang, 2

San Juan, 1

Savannah, 100

Sierra Leone, 100

Valparaiso, 3

Venice, 11

Victoria, W.C.A., 20

Winnebuh, 17

Zanzibar, 500

Benin, 100

Brussels, 400

Ferrol, 4

Gibraltar, 300

Gr. Bassam, 24

Loanda, 130

Malta, 60

Natal, Brazil, 512

Rotterdam, 449

St. John's, 100

Shanghai, 251

Teneriffe, 100

Toronto, 750

Warri, 450

Soda—

Calcutta, 80 cs.

Soda Alkali—

Auckland, 20 brls.

Leghorn, 40

Odessa, 235

Venice, 35

Wellington, N.Z., 8

Soda Ash—

Baltimore, 93 cks. 1,692 bgs.

Boston, 310 1,840

B. Ayres, 342 600 brls.

Callao, 30

Lisbon, 12

Montreal, 106 56

New York, 454 1,250

Philadelphia, 455

Piræus, 50

Rio de Janeiro, 200

Rosario, 100

Boston, 10

Christiania, 32

Corfu, 8

Dunedin, 9

Kingsey, 120

Payta, 46

Preston, Ont., 11

St. Petersburg, 233

Santa Catherina, 100

Sherbrooke, 96

Wellington, N.Z., 20

Yokohama, 120

Soda Crystals—

Ceara, 50 brls.

New York, 56

Philadelphia, 374 kgs. 50 cks.

Bombay, 10

Boston, 107

E. London, 7 3

Malta, 75

New York, 84

Quebec, 25

Sodium Arseniate—

Boston, 6 cks.

New York, 3

Sodium Borate—

New York, 3 brls.

Rotterdam, 2 cks.

Yokohama, 59 cs.

Sodium Bicarbonate—

Barcelona, 150 kgs.

Boston, 150

Christiania, 32 2 cks.

Copenhagen, 30

Danzig, 100

Hamburg, 30 3 brls.

Havre, 65

Leghorn, 50 3

Melbourne, 200

Nantes, 10

Odense, 2 10

Para, 60

Rotterdam, 60 4

Amsterdam, 776

Bombay, 4 13

Bordeaux, 4 7

Bremerhaven, 100 50

B. Ayres, 350

Calcutta, 150

Dunedin, 36

E. London, 143 11

Genoa, 200

Hamilton, 20

Port Natal, 100

Quebec, 100

St. John's, 20

St. Petersburg, 725

Singapore, 14 10 bgs.

Teneriffe, 250

Toronto, 50

Vera Cruz, 50

Sodium Bichromate—

Ghent, 15 cks.

Sodium Carbonate—

Rotterdam, 50 brls.

Cottonseed Oil—

Amsterdam,	22 c.
Antwerp,	393
Bremen,	183
Flushing,	400
Hamburg,	619
Naples,	68
Rotterdam,	1,716
Stettin,	393

Cresote—

Gotenburg,	150 cks.
Marseilles,	50

Dyestuffs (otherwise undescribed)

Aalsund,	25 bls.
Bergen,	54
Christiania,	25
Dunkirk,	1 ck.
New York,	6 20 cs.
Rotterdam,	8 6 gr bgs.
St. Petersburg,	
Stettin,	2

Linseed Oil—

Alb,	156 c.
Antwerp,	23
Bergen,	139
Christiania,	774
Christiansand,	53
Christiansund,	58
Dunkirk,	34
Drontheim,	221
Helsingfors,	68
Hamburg,	150
Rotterdam,	102
Saenger,	122
Wiburg,	4

Mineral White—

Flushing,	100 bls.
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Ochre—

Hamburg,	16 cks.
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Painters' Colours—

Alb,	1 ck.
Amsterdam,	14
Antwerp,	53 5 cs. 1 pkg.
Bergen,	3 5 10 dms.
Bremen,	1
Copenhagen,	19 7 59
Christiania,	61 240 pks. 20 dms.
Flushing,	1
Gotenburg,	2
Genoa,	63 3
Helsingfors,	8 25
Hamburg,	13 2
Hartingen,	2
Kuigsberg,	115
Leghorn,	24
Marseilles,	24
New York,	170 438 pks.
Rotterdam,	6 39
Rosen,	5
St. Petersburg,	270
Stockholm,	1 1
Stettin,	17

Pitch—

Antwerp,	450 t.
Copenhagen,	25
Dunkirk,	131
Helsingfors,	12 cs.

Size—

Copenhagen,	4 cks.
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Soap—

Copenhagen,	2 cs. 2 cks.
Gotenburg,	3 3 5 bls.
Wiburg,	1

Tar—

Amsterdam,	211 cks.
Bergen,	5
Christiania,	5
Hamburg,	8
Rotterdam,	1
Wiburg,	22

Toluol—

Rotterdam,	24 cks.
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Varnish—

Amsterdam,	10 cks.
Antwerp,	2 2 cs.
Copenhagen,	4
Christiania,	1
Genoa,	6 17 bls.
Stettin,	1

GLASGOW.

Week ending June 22nd.

Acids—

Rangoon,	£69
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Ammonium Sulphate—

Valencia,	473 t. 15½ c.
Straits,	25
Barbadoes,	42 510
Nantes,	49 2 588

Asbestos—

Calcutta,	2¼ c.
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Bichromates—

New York,	71 t. 10¼ c.
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Bleaching Powder—

New York,	11 t. ½ c.
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Carbolic Acid—

Stockholm,	5 cks.
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Castor Oil—

Adelaide,	1 t. 18¾ c.
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Caustic Soda—

Dunedin,	6 t. 5¾ c.
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Sydney,	10 6¼ 250
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Chemicals (otherwise undescribed)

Rotterdam,	1 t. 15 c.
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Chloride of Lime—

New York,	10 t. 3 c.
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Citric Acid—

Hamburg,	2 cks.
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Coal Products—**Alizarine Colours**

Montreal,	£78
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Cresote Oil

Boston,	41 t.
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Stockholm,	102 10½ c.
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Odessa,	16 13 24
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Naphtha

Dunedin,	3 t. 4½ c.
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Bordeaux,	26 13 58
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Pitch

Bombay,	£41
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Boston,	108 t. 1 c.
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Montreal,	33 6¼ 40
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New York,	69 13 132
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Quebec,	8 25
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Odessa,	119 2 169
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Tar

Boston,	72 t. 3 c.
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Riga,	397 brls.
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Singapore,	99
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Odessa,	154 13 219
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Coal Tar Products (otherwise undescribed)

Rotterdam,	10 t.
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Hamburg,	7 dms.
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Colours—

Montreal,	2 t. 11¾ c.
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Rio de Janeiro,	3 12¼ 21
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Dyestuffs—**Extracts**

Barcelona,	5 t. 6 c.
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Logwood

Montreal,	10 t. 1¾ c.
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Dyestuffs (otherwise undescribed)

Dunedin,	£80
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Farina—

Antwerp,	4 t. 18¾ c.
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Lead Acetate—

Montreal,	1 t. 3 c.
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Linseed Oil—

Dunedin,	15 t. 4 c.
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Colombo,	£369. 118.
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Rio de Janeiro,	2 19¼ 56
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Adelaide,	6 3½ 139
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Mauritius,	400 glns. 44
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Antwerp,	16 20
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Hong Kong,	19½ 26
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Litharge—

Montreal,	31 t. 17 c.
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Magnesium Sulphate—

Calcutta,	5 t.
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Bombay,	5 23
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Mauritius,	5 13¼ c. 20
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Manure—

Valencia,	17 t. 14¼ c.
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Barbadoes,	124 18 1,390
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Manganese—

Antwerp,	11 t. 17¾ c.
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Rotterdam,	10 10
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Hamburg,	8 14 8
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Nitrate of Lead—

Montreal,	4 t. 11¼ c.
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Paint—

Rio de Janeiro,	2 t. 2¾ c.
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Calcutta,	3 6¼ 63
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Rangoon,	70
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Bombay,	16 18¾ 164
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Boston,	10 30
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Singapore,	1 3¾ 20
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New York,	11 16¼ 252
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Quebec,	17¼ 30
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Sydney,	10 1½ 142. 108.
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Straits,	6 2¾ 178
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Painters' Colours—

Dunedin,	£762. 188.
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Straits,	3 t. 8¼ c. £74
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Calcutta,	23 3 £357. 178.
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Bombay,	3 46 10
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Mauritius,	11 1½ £136
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Hong Kong,	5 6¼ 77
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Japan,	1 7 21
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Amsterdam,	8 cks. 13
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Sydney,	2 18 96
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Trinidad,	35
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Paraffin Scale—

Hong Kong,	3 t. 9¼ c.
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Japan,	13 18¼ £112
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Paraffin Wax—

Dunedin,	5 t. 19 c.
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Rio de Janeiro,	8 12¼ £146
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Bordeaux,	120 bgs. 264
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Riga,	9 t. 15 c. 282
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Leghorn,	10 399
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Hamburg,	15 6¼ 340
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Sydney,	11 8¼ 328
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Potassium Bichromate—

Bombay,	4 t. 4½ c.
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Boston,	6 19 £159
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Valencia,	16 18 666
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Antwerp,	9 3 332
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Leghorn,	15 11¼ 623
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Japan,	10 14¼ 426
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Hamburg,	12 cks. 184
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Nantes,	4 12 183
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Potassium Prussiate—

Barcelona,	19,040 lbs. £649
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Montreal,	10½ c. 40
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New York,	8 t. 19¼ 820
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Pyrolignite of Iron—

Hamburg,	1 t. 18 c.
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Rosin Oil—

Rotterdam,	25 brls. £45
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Salt—

Trinidad,	8 t. 12½ c.
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Saltpetre—

Rio de Janeiro,	2 t. 14 c.
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Sheep Dip—

Dunedin,	5 t. 11¾ c.
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Chili,	4 t. 5¼ c. £118
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Soap—

Dunedin,	10 c.
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Calcutta,	1 t. 10 £20. 108.
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Sodium Bichromate—

Bombay,	1 t. ½ c.
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Valencia,	3 3 109
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Antwerp,	19 3¼ 563
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Leghorn,	6 6¼ 197
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Nantes,	12½ 21
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Sulphuric Acid—

Rangoon,	63 t. ¾ c.
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Bombay,	15 14¼ £375
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Straits,	100 20
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Tallow—

Antwerp,	4 t. 7¼ c.
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Amsterdam,	1 17 50
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Straits,	16¼ 24
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Varnish—

Straits,	100 glns.
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Japan,	1 t. 9¼ c.
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Sydney,	10¼ £41
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White Lead—

Dunedin,	£459. 108.
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Montreal,	10 t. 4¼ c. £175
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Adelaide,	1 1½ £22. 108.
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Bombay,	6 6¼ 116
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Sydney,	7 7 142
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Zinc Oxide—

Amsterdam,	4 cks. £8
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TYNE.

PRICES CURRENT.

WEDNESDAY, JUNE 28th, 1893.

PREPARED BY MESSRS. HIGGINBOTTOM AND CO., 116, PORTLAND STREET, MANCHESTER.

The values stated are F.O.R. at maker's works, or at usual ports of shipment in U.K. The price in different localities may vary.

Acids:—

	£	s.	d.
Acetic, 25 % and 40 %	per cwt	7/-	& 10/6
" Glacial	"		50/-
Arsenic S.G., 2000°	"	0	14 6
Fluoric	per lb.	0	0 3¼
Muriatic (Tower Salts), 30° Tw.	per bottle	0	0 10
" (Cylinder), 30° Tw.	"	0	3 0
Nitric 80° Tw.	per lb.	0	0 1¾
Nitrous	"	0	0 1¾
Oxalic	nett	0	0 3
Phosphoric, 1750°	"	0	1 2½
Picric	"	0	1 0
Sulphuric (fuming 50 %)	per ton	15	10 0
" (monohydrate)	"	5	10 0
" (Pyrites, 168°)	"	3	0 0
" " 150°	"	1	5 0
" " (free from arsenic, 145°)	"	1	6 0
Sulphurous (solution) S.G. 1025	"	3	0 0
Tannic (pure)	per lb.	0	1 2
Tartaric	"	0	0 11½
Arsenic, white powdered	nett	13	17 6
Alum (loose lump)	"	5	2 6
Alumina Sulphate (pure)	"	5	0 0
Aluminoferic	"	2	10 0
Aluminium	per lb.	0	4 0
Ammonia, Anhydrous	"	0	1 2
" "880=28°	per lb.	0	0 2½
" "=24°	"	0	0 1¾
" Carbonate	nett	0	0 3¼
" Muriate	per ton	20	0 0
" " (sal-ammoniac) 1st & 2nd	per cwt.	37/-	& 35/-
" Nitrate	per ton	39	0 0
" Phosphate	per lb.	0	0 10½
" Sulphate (grey) London	per ton	13	0 0
" " (grey) Hull	"	13	0 0
Aniline Oil (pure)	per lb.	0	0 6¾
Aniline Salt	"	0	0 6¼
Antimony	per ton	45	10 0
" (tartar emetic)	per lb.	0	1 0
" (golden sulphide)	"	0	0 10
Barium Chloride	per ton	7	10 0
" Carbonate (native)	"	3	10 0
" Sulphate (native levigated)	"	45/-	to 75/-
Bleaching Powder, 35 %	nett	8	0 0
" Liquor, 7 %	"	3	10 0
Bisulphide of Carbon	"	11	15 0
Chromium Acetate (crystal)	per lb.	0	0 6
Calcium Chloride	per ton	2	5 0
China Clay (at Runcorn) in bulk	"	17/6	to 35/-

Coal Tar Products and Dyes:—

Alizarine (artificial) 20 %	net	per lb.	0	0	8
Magenta	"	"	0	3	9
Anthracene, 30 % A, f.o.b. London	per unit	per cwt.	0	1	2
Benzol, 90 % nominal	"	per gallon	0	1	5
50/90	"	"	0	1	4
Carbolic Acid (crystallised 40°)	"	per lb.	0	0	7 1/4
" (crude 60°)	"	per gallon	0	2	5
Creosote (ordinary)	"	"	0	0	1
" (filtered for Lucigen light)	"	"	0	0	1 1/4
Crude Naphtha 30 % @ 120° C.	"	"	0	0	7 1/2
Grease Oils, 22° Tw.	"	per ton	2	5	0
Pitch, f.o.b. Liverpool or Garston	"	"	1	5	0
Solvent Naphtha, 90 % at 160°	"	per gallon	0	0	11
"Lucigen" and "Wells" Oils	"	"	0	0	1 1/4
Copper	"	per ton	43	17	6
" Sulphate	"	"	16	2	6
" Oxide (copper scales)	"	"	42	0	0
Glycerine (crude)	"	"	13	0	0
" (distilled S.G. 1250°)	"	"	43	0	0
Iodine	"	nett, per oz.	0	0	9
Iron Sulphate (copperas)	"	per ton	1	12	6
" Sulphide (antimony slag)	"	"	2	0	0
Lead (sheet) for cash	"	"	10	10	0
" Litharge Flake (ex ship)	"	"	13	0	0
" Acetate (white)	"	"	25	15	0
" brown	"	"	17	10	0
" Carbonate (white lead) pure	"	"	20	0	0
" Nitrate	"	"	20	0	0

Lime, Acetate (brown)	per ton	5	17 6
" " (grey)	"	10	15 0
Magnesium (ribbon and wire)	per oz.	0	2 3
" Chloride (ex ship)	per ton	2	7 6
" Carbonate	per cwt.	1	17 6
" Hydrate	per ton	17	0 0
" Sulphate (Epsom Salts)	per ton	2	19 0
Manganese, Sulphate	"	17	15 0
" Borate	per cwt.	2	12 6
" Ore, 70 %	per ton	4	5 0
Methylated Spirit, 61° O.P.	per gallon	0	2 0
Naphtha (Wood), Solvent	"	0	3 6
" Miscible, 60° O.P.	"	0	4 0

Oils:—

Cotton-seed	per ton	23	0 0
Linseed	"	22	10 0
Lubricating, Scotch, 890°—895°	"	7	5 0
Petroleum, Russian	per gallon	0	0 4
" American	"	0	0 3½
Potassium (metal)	per oz.	0	3 7
" Bichromate	per lb.	0	0 4½
" Carbonate, 90% (ex ship)	per ton	17	0 0
" Chlorate	per lb.	0	0 8½
" Cyanide, 98%	"	0	2 0
" Hydrate (Caustic Potash) 80/85 %	per ton	21	10 0
" " (Caustic Potash) 75/80 %	"	20	10 0
" " (Caustic Potash) 70/75 %	"	20	0 0
" Nitrate (refined)	per cwt.	1	2 6
" Permanganate	per cwt.	3	5 0
" Prussiate Yellow	per lb.	0	0 9½
" Sulphate, 90 % (ex ship)	per ton	9	15 0
" Muriate, 80 % (do.)	"	8	0 0
Silver (metal)	per oz.	0	2 10
" Nitrate	"	0	2 10
Sodium (metal)	per lb.	0	3 4
" Carb. (refined Soda-ash) 48 %	nett	per ton	6 0 0
" " (Caustic Soda-ash) 48 %	"	"	4 17 6
" " (Carb. Soda-ash) 48 %	"	"	4 15 0
" " (Carb. Soda-ash) 58 %	"	"	5 0 0
" " (Soda Crystals)	"	"	2 17 6
" Acetate (ex-ship)	"	"	16 10 0
" Arseniate, 45 %	"	"	12 0 0
" Chlorate	per lb.	0	0 9
" Borate (Borax)	net, per ton	29	0 0
" Bichromate	per lb.	0	0 3½
" Hydrate (77 % Caustic Soda) (f.o.b.) net pr. ton	lots	11	0 0
" " (74 % Caustic Soda)	"	10	10 0
" " (70 % Caustic Soda)	"	9	10 0
" " (60 % Caustic Soda)	"	8	10 0
" " (60 % Caustic Soda, cream) (f.o.b.)	"	8	5 0
" Bicarbonate	"	6	10 0
" Hyposulphite	"	6	10 0
" Manganate, 30%	"	16	0 0
" Nitrate (95 %) ex-ship Liverpool	per cwt.	0	9 0
" Nitrite, 98 %	per ton	27	10 0
" Phosphate	"	15	0 0
" Prussiate	per lb.	0	0 7½
" Silicate (glass)	per ton	5	7 6
" " (liquid, 100° Tw.)	"	4	5 0
" Stannate, 40 %	per cwt.	3	5 0
" Sulphate (Salt-cake)	per ton	1	4 0
" " (Glauber's Salts)	"	1	10 0
" Sulphide	"	8	10 0
" Sulphite	"	6	5 0
Strontium Hydrate, 100%	"	8	10 0
Sulphocyanide Ammonium, 95 %	per lb.	0	0 7½
" Barium, 95 %	"	0	0 5
" Potassium	"	0	0 7½
Sulphur (Flowers)	per ton	8	0 0
" (Roll Brimstone)	"	6	10 0
" Brimstone: Best Quality	"	4	2 6
Superphosphate of Lime (26 %)	"	2	7 6
Tallow	"	27	10 0
Tin (English Ingots)	"	88	0 0
" Crystals	per lb.	0	0 6¼
Zinc (Spelter)	per ton	17	15 0
" Chloride (solution, 96° Tw.)	"	5	15 0

THE CHEMICAL TRADE JOURNAL AND OIL, PAINT and COLOUR REVIEW.

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No. 320.

SATURDAY, JULY 8, 1893.

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MANY A MICKLE MAKES A MUCKLE.

EXPERIENCE is a wonderful and most convincing teacher, and is one which seldom allows its teachings to be ignored without bearing disagreeable fruit.

This fact seems likely to be demonstrated ere long to the Mersey and Irwell Joint Committee. Many of our readers will remember that when this Committee wisely foresaw the necessity of having an expert to advise them as to the steps they should take in enforcing their powers for preventing the pollution of the rivers Irwell and Mersey and their tributaries, by the introduction of manufacturers' waste waters, much discussion took place about the appointment which the Committee proposed to make.

In the laudable desire to secure "a man of high degree," who it was calculated would strike terror into the hearts of offending polluters, and by reason of his exalted position would be *sans peur et sans reproche*, the warnings of those members of the Committee who were competent to estimate the qualities of their prospective *Magnus Apollo* were granted somewhat scanty consideration. The feeble assistance afforded the Committee by the Preliminary and Final Report, which emanated from the same eminent source, did not augur well for the future; but of course it is impossible to know what assurances of more substantial aid were given in mitigation of past shortcomings. Be this as it may, eventually the veritable Jupiter was secured at a fitting figure. Shortly, however, the Committee found that whatever the resources of their great chemist might be, they required a sum of £25 towards obtaining the necessities for testing effluents; the latest discovery being that even then only the testing of manufacturers' effluents could be performed free of cost, it being necessary to charge the sum of five shillings for analysing effluents from Rural Sanitary Authorities, etc. Elsewhere in our columns this week these "analyses" will be found, together with an opinion as to the reasonableness of the charge.

Five shillings for a statement of the amount of oxygen absorbed, without any information as to whether the test was of fifteen minutes' duration or three hours, brings up *pro rata* the cost of an ordinary analysis to £3., regardless of any charge for reporting on the analysis, or margin of profit for the analyst to cover the wear and tear of his apparatus, &c.

This, the first, "bolt from the blue" may impress Sanitary Authorities, but is likely to be a comfort rather than a cause of consternation to chemical manufacturers by giving them an inkling of the style of the evidence they are likely to have to rebut. According to modern opera, the "man of high degree" accepts hospitality with a gracious bending of his back and bowing of his head, which may be varied on this occasion to—

"I bend my back with bow profound,
And thus accept seven hundred pound."

There is another matter, however, in connection with which the Joint Committee seems likely to shine. Some six

months ago we mentioned the difficulty which threatened the Committee on account of the preternatural procrastinating powers of the Local Government Board. Up to now complaints and deputations have had about as much effect as pouring water on a duck's back. The Committee have this time, to all appearances, an exceptionally strong case, and some hard facts to put forward. If remedy can only be had by getting at the Chancellor of the Exchequer, the unanimous feeling seems to be that to the Chancellor of the Exchequer it shall go. It may seem a bold thing to do, but it requires something out of the ordinary to move, let alone alter, such a ponderous machine as the Local Government Board, and we can only again urge importunity even in the higher quarters.

If the inspectors of the Board are so heavily burdened with work now, they cannot be looked upon as anything other than dead men if some four hundred ticklish cases are to be suddenly heaped on them. If the Joint Committee can compass their end they will have rendered a service to the community at large, and they have our heartiest wishes for the success of their efforts, to bring the most importunate importunity to bear on the powers that be.

THE MERSEY AND IRWELL JOINT COMMITTEE.

THE usual monthly meeting of this committee was held at the offices, 44, Mosley-street, Manchester, on Monday last, Alderman Thompson presiding. A letter was read by the clerk (Mr. Hulton) from Sir Hugh Owen, the permanent head of the Local Government Board, expressing his desire to expedite the inquiries in connection with the committee's cases, and mentioning the pressure to which their inspectors were put just now. Five small cases were mentioned in the letter as being in progress.

Mr. Killick asked that the Local Government Board should inform the committee what was the position of the remaining cases.—The Chairman thought they could congratulate themselves on having got an answer from the Local Government Board, and suggested asking for the more important cases to be taken first, as set forth in the list sent to Sir H. Owen by the clerk.—Mr. V. K. Armitage thought the letter was not satisfactory in any shape or form. It was not satisfactory that a public official should have the right of saying whether a great work should be impeded or not. The work of the committee went on in a lamentably slow way. Only four additional schemes had come in operation within twelve months, and there were 75 schemes now before the Local Government Board. If the Board had not enough inspectors to do their work, they should increase their staff. He would like the public to know where the responsibility lay for the delays of the last twelve months. It was not with them, but with the Local Government Board. He lived two or three miles from the sewage tanks, which were called the Ship Canal docks. He asserted that if the canal were opened now, and those sewage tanks were being churned up day by day by the screws of a number of steamers, there would be an enormous epidemic over all that part of Salford which lay to the leeward of the docks. The smell which came to his house from the docks was abominable.

The Chairman pointed out that the appointment of inspectors rested with the Lords of the Treasury, and it was difficult to get their consent.

Alderman Walmsley supported the remarks of Mr. Armitage, adding that scarcity of inspectors was at the bottom of all the delay of the Local Government Board. It had been a chronic want for seventeen years and more.

Mr. Armitage suggested that if the Local Government Board could not get the Treasury to give them an inspector, the Joint Committee should offer to give the Board the money to pay for one.

Mr. Hulton (clerk) pointed out, however, that the Committee had no legal power to follow such a course.

Mr. Killick raised a matter which emphasised the urgency of bringing pressure to bear through one quarter or another, in order to enable the Local Government Board to do its work more expeditiously. They were now beginning to deal with manufacturers' pollution. There were 461 cases of this nature, which might, one and all, necessitate inquiries being held by the Local Government Board. The present rate of progress was simply appalling, in view of what the Board may be called upon to do.

After some discussion, the chairman suggested that an interview should be arranged with the Parliamentary members of Lancashire and Cheshire in London, to be followed by a deputation to the Local Government Board and the Chancellor of the Exchequer.

Mr. Armitage moved a motion to this effect, which he subsequently withdrew, however, in favour of the following more comprehensive motion moved by Mr. Killick:—"That a letter be again addressed to the Local Government Board respectfully asking that their decisions may be known as early as possible, in order to help the Committee in carrying out the purification of the rivers; that the Local Government Board be asked to inform the Joint Committee from time to time of the position of the various schemes before them for approval; that a list be forwarded stating the dates when schemes were submitted to the Board, when the inquiries were held, and whether the schemes were sanctioned or not; further, that the Local Government Board be informed of the number of inquiries to be held in connection with manufacturing pollution, and that a suggestion be made that it is necessary to appoint more inspectors to deal with the matter in an adequate manner." The motion was put and unanimously adopted.

Mr. Armitage further moved that a special meeting be called to consider the answer of the Board. The motion was carried.

The Chief Inspector (Mr. R. A. Tatton) then presented the following report:—

The extension of time granted to the authorities having expired in the cases of Mossley, Macclesfield, Droylsden, Little Lever, Mottram, Hollingworth, Gorton, Aspull, Kearsley, Whitworth, Middleton, and Whitefield, it will be for your Committee to decide whether a further extension of time shall be granted.

I beg to report on the following cases:—

Mossley Corporation.—Population, 14,102; ratable value, £57,855. The scheme for the disposal of the sewage of this district, which was submitted to the Local Government Board six months ago, has not yet received the final assent of the Board.

Macclesfield Corporation.—Population, 36,000; ratable value, £80,748. 7s. 6d. A provisional order to acquire land compulsorily under the Lands Clauses Acts has not yet been finally confirmed by Parliament, and the application will, I understand, be strongly opposed.

Droylsden Local Board.—Population, 9,500; ratable value, £30,168. The scheme was sent up to the Local Government Board in January last, but an inquiry has not yet been held.

Middleton Corporation, Gorton Local Board, and Little Lever Local Board.—Population of Middleton, 22,152; ratable value, £62,056. Population of Gorton, 15,500; ratable value, £43,126. Population of Little Lever, 5,500; Ratable Value, £15,956. The schemes for these authorities are all before the Local Government Board.

Whitworth Local Board. Population, 9,800; ratable value, £46,858. The Board have purchased land, and have given instructions to an engineer to prepare plans. I would suggest that a definite time be fixed within which the scheme must be submitted to the Local Government Board.

Aspull Local Board.—Population, 9,000; ratable value, £24,224. The sewage from this district will be received into the Wigan Corporation sewage scheme, on the subject of which a Local Government Board inquiry was held some months ago.

Kearsley Local Board.—Population, 8,000; ratable value, £22,445. The tanks for the reception of the sewage of this district are nearly completed, but the intercepting sewer has not yet been made. Plans have been prepared by the Board, but the arrangements for land are not completed.

You will notice that the schemes of six of the authorities on which I have reported are now before the Local Government Board, and in some cases six months have elapsed since the first application was made. I would suggest that the Local Government Board be again strongly urged to hasten forward the schemes as much as possible. It seems unfortunate that the best six months of the year for works of construction have been practically lost, owing to the length of time required before schemes can be finally approved.

I beg to lay before you reports by Sir Henry Roscoe, on sewage effluents collected during the past month at some of the sewage works in the watershed. These reports confirm what I reported to you last month—that the effluents from irrigation farms at this time of the year are usually bad. Of the six works discharging their effluents into the Glazebrook, one only is satisfactory.

EFFLUENTS FROM THE TREATMENT OF SEWAGE.

Classification of Sample.	DESCRIPTION OF SAMPLE.	Oxidisable Organic matter. Oxygen absorbed from an acid solution of Permanganate of Potash.	REMARKS.
Satisfactory.	Royton Sewage Works, June 16th, 1893	...	Clear bright effluent, free from smell.
	Offerton Sewage Works, June 14th, 1893	0'21	Clear bright effluent; on standing, slight amount of suspended matter formed.
	Wilmslow Local Board Sewage Farm, June 21st	...	Clear bright effluent; small amount of suspended matter formed on standing.
	Chorley Local Board (Alderley) June 21st	...	Clear bright effluent; small amount of suspended matter on standing.
	Ashton-on-Mersey Sewage Farm, Altrincham R.S.A., June 16th ...	0'21	Do. do.
Fairly Satisfactory.	Westhoughton Local Board, "Marsh Brook Farm," June 15th ...	0'49	Do. do.
	Altrincham Local Board Sewage Farm, June 15th	0'60	Do. do.
	Swinton Sewage Works, June 16th, 1893, 2-30 p.m.	...	Large quantity of oxide of iron in suspension; no smell
	Barton Moss Sewage Farm of the Barton R.S.A., June 16th, 4 p.m.	...	Brownish colour, no smell, large amount of suspended matters.
	Heaton Norris Sewage Works, June 14th, 1893	1'26	Black, sulphuretted hydrogen present, fat also present; stinks.
Bad.	Timperley Sewage Works, June 15th, 1893	1'26	Brown deposit, no sulphuretted hydrogen, large amount suspended matter.
	Dunham Massey Sewage Farm, A.R.S.A., June 16th, 1893 ...	1'26	Black, H ₂ S present, fat, stinks.
	Farnworth Sewage Works, June 19th, 1893, 9-30 p.m.	...	Opaque and turbid, stinks of urine.
	Bowdon Local Board Sewage Farm, June 19th, 1893	...	Black, H ₂ S present, stinks.
	Withington Sewage Farm, June 14th, 1893	2'24	Black, H ₂ S, fat, stinks.
	Westhoughton Local Board, "Roger's Farm," June 15th, 1893 ...	3'43	Black, H ₂ S, fat, stinks.
	Hindley Sewage Works, June 20th, 1893	2'64	Black, H ₂ S, stinks.
	Tyldesley Local Board, Morley's Hall Sewage Farm, June 14th, 1893	3'43	Black, H ₂ S, fat, stinks.
	Knutsford A.R.S.A. Sewage Works, June 19th, 1893	...	Black, H ₂ S, stinks.
	Hale A.R.S.A. Sewage Works, June 19th, 1893	...	Black, H ₂ S, stinks.
	Bramhall Freeholders' Co., June 14th, 1893	...	Black, H ₂ S, stinks.
	Leigh Local Board Sewage Farm, June 14th, 1893	3'78	Black, H ₂ S, stinks.

The report of the Consulting Sub-Committee was next presented and ran as follows:—

The Consulting Sub-Committee have to report that the orders, granting further extensions of time to the undermentioned Local Authorities, expire this month, and that after carefully considering their position they beg to make the following recommendations:—

Mossley.—This Authority has submitted their scheme for the approval of the Local Government Board, but as yet no final reply has been received by them. The Sub-Committee therefore recommend that a further extension of time for three months be now given to this Authority.

Macclesfield.—The Provisional Order promoted by this Authority to enable them to compulsorily acquire the necessary land for their sewage works is now before Parliament, and as some opposition is likely to be raised against it, the Sub-Committee recommend that a further extension of time for two months be given to this Authority.

Bacup, Haslingden, and Rawtenstall.—In accordance with the instructions of the Joint Committee the Clerk has issued summonses against the Corporations of Bacup and Rawtenstall—that against Bacup being returnable on the 26th July, that against Rawtenstall on the 20th July. In the case of Haslingden, however, in consequence of the receipt of a letter from the Mayor, strongly urging that the summons should not be issued against them until a deputation had an opportunity of appearing before the Sub-Committee, your Sub-Committee instructed the Clerk to postpone issuing this summons. A deputation, consisting of the Mayor (Alderman Hamilton), Mr. Councillor Duckworth, and Mr. James Hindle, Clerk to the Sewerage Outfall Board, therefore attended before the last meeting of your Sub-Committee, and from the statements then made it appears that the present difficulty with regard to the treatment of their sewage lies between Bacup and Rawtenstall, and that the Local Government Board will not pass the Haslingden scheme until the question of the disposal of the Bacup sewage is settled. Upon these facts the Sub-Committee recommend that the summons against Haslingden should not be taken out at present, but as the sewage of Rawtenstall is to be dealt with by a Statutory Authority called the Haslingden and Rawtenstall Joint Outfall Sewerage Board, the Committee recommend that the Clerk be instructed to issue a summons forthwith against this Authority.

Bolton Rural Sanitary Authority.—The clerk reports that in accordance with a resolution passed at the last meeting of the Joint Committee he has issued a summons against this authority, returnable

for July 13th. Since that date the clerk to the Rural Sanitary Authority has written strongly urging that further proceedings should not be taken until he can have an opportunity of an interview with the committee. The sub-committee, however, have not been able to arrange with the authority for an interview in time for to-day's meeting, and they, therefore, recommend that the clerk be authorised to apply for the hearing of the case to be adjourned for a month, in order that a deputation from this authority may be able to appear before the next meeting of your sub-committee.

Abram and Ashton-in-Makerfield.—The chief inspector reports to your sub-committee that in the case of the first of these authorities there are practically no sewage works; and that in the latter case the works are useless. The sub-committee, therefore, recommend that the clerk be instructed to take proceedings forthwith against both these authorities for offences against Part II., section 3, of "The Mersey and Irwell Joint Committee Act, 1892."

Audenshaw.—The clerk reports to the sub-committee that the hearing of this case has been further adjourned to July 19th, and as there appears to be some little difficulty upon the question of who is liable for the pollution of this portion of the Gore Brook, the sub-committee recommend that the clerk be instructed to issue a summons against the Corporation of Manchester for offences against Part II., section 3, of "The Mersey and Irwell Joint Committee Act, 1892," as a portion of the recently extended district of Manchester drains into this brook; and also the Corporation constructed the sewers which convey sewage from the other districts complained of direct into this brook.

In connection with this case, the chairman urged that proceedings be stayed against Manchester on account of there having been some error in the addressing of the communication, which led to the same reaching the wrong department. The committee, however, did not see their way to delaying longer, and decided to prosecute both Manchester and Audenshaw.

Mottram-in-Londendale and Hollingworth.—The Chief Inspector reports that plans are now being prepared for carrying out the necessary sewage works for these districts. The sub-committee, therefore, recommend that a further extension of time, for three months, be now given them.

Kearsley.—At the last meeting of the Joint Committee an extension of time, for one month, was given this authority, and they were told that in the opinion of the committee they were making unnecessary

delay in carrying out the construction of their main intercepting sewer. The Chief Inspector reports that since that date they have been making some progress, but that there appears to have been some difficulty in their way. The sub-committee therefore have instructed him to enquire further into the position of this authority, and report to the next meeting, and they recommend that a further extension of time for one month be given to the authority.

Whitworth.—This authority appears to be making satisfactory progress in preparing the necessary plans for the approval of the Local Government Board. The committee therefore recommend that a further extension of time for two months be now given to them.

The following six authorities have schemes at present before the Local Government Board, and the sub-committee recommend that a letter be again addressed to the Local Government Board, respectfully asking that their decision may be made known as early as possible, in order to help the committee in carrying out the purification of rivers. The sub-committee would further suggest that the Local Government Board be asked to inform the Joint Committee, from time to time, of the position of the various authorities who have schemes before them for their approval.

Droylsden and Little Lever.—The Sub-Committee recommend that an extension of time for two months be granted to these Authorities.

Gorton.—An inspector of the Local Government Board held an inquiry some months ago into this scheme, but the decision has as yet not been made known. The Sub-Committee therefore recommend that a further extension of time for two months be also given to this Authority.

Aspull.—This Authority state that they are making arrangements for their sewage to be taken into the sewers of the Corporation of Wigan, and, pending the decision of the Local Government Board with regard to the same, the Sub-Committee recommend that a further extension of time for two months be given to this Authority.

Middleton.—Plans for the sewage works of this Authority have been submitted to the Local Government Board. The Sub-Committee therefore recommend that a further extension of three months be now given to them.

Whitefield.—The hearing of this case stands adjourned for the 20th July, but as the Local Government Board has not yet made known its decision with regard to the proposed amalgamation of the Stand-lane portion of this district with the Radcliffe Local Board, the Sub-Committee recommend that the clerk be instructed to apply for a further adjournment of the case for one month.

The sub-committee have had before them a letter from Sir Henry Roscoe with reference to the analyses of sewage effluents, and they recommend that Mr. Tatton be authorised to have such analyses made whenever he considers it necessary, for the sum of 5s for each analysis, as set out in Sir Henry Roscoe's letter. Sir Henry has also presented to your sub-committee a valuable report upon the state of the effluents from 22 sewage works (see page 19).

The recommendations of the sub-committee were adopted.

In moving the adoption of the last clause, however, in relation to the charge of 5s. for the analyses of effluents from sewage works, Mr. Killick said the charge was a very reasonable one, and he did not think they could get the analyses done at such a reasonable figure by an outsider. The question of the inclusiveness of Sir H. Roscoe's fee of £700, was raised, and a discussion followed. As, however, there were three deputations waiting to be interviewed by the committee, it was decided on the motion of Mr. Groves to postpone the matter till the next meeting of the committee.

The deputations from the three firms asked to attend and show cause why the committee should not take action were then interviewed. In the case of Messrs. Heap and Sons, of Rochdale, it was shown that after six months' notice—which was also given in the other two cases—no effectual purification was being carried out. Tanks existed, but were not in working condition. The total solids in suspension were 149.8 grains per gallon, and consisted of lime and fine "fleshings." An undertaking was given to have a satisfactory effluent entering the river within one month, and an extension for that period was granted. With regard to Messrs. W. Clegg, of Milnrow, there were four outlets from the works, carrying waste and sewage. The total suspended solids were 212 grains per gallon, of which 169 grains were volatile matters. The effluent rapidly became putrid.

In the absence of any satisfactory evidence the Committee decided to take action. A similar decision was arrived at in the case of Messrs. J. Hill & Co., of Shawelough, Rochdale, where the total solids in suspension amounted to 114.8 grains per gallon, and total solids in solution to 91.7 grains per gallon.

REPORT OF THE CHEMICAL SUB-COMMITTEE

The following is an abstract of the report of this Committee, which states that meetings have been held with representatives of the paper-making and woollen trades in the watershed. At these meetings the manufacturers present were addressed by Sir Henry Roscoe, and informed of the necessity of their taking efficient steps at an early date

for the purification of their waste effluents. The Sub-Committee have considered the position of the undermentioned firms, and are not able to report that it is satisfactory. They therefore recommend that a notice be now served on each of the firms, inviting them to appear before the Joint Committee, if they so desire, to show cause why proceedings should not be taken against them in accordance with Part III., Section 6 (Sub-Section 2), of "The Mersey and Irwell Joint Committee Act, 1892":—

Messrs. William Rumney & Co., Stubbins, Ramsbottom; T. Boyd and Co., Levenshulme; J. F. Hill and Co., Bowker Bank, Crumpsall; The Hollingworth Print Works, Hollingworth; The Handforth Printing Co., Handforth, Stockport; J. Hardcastle and Co., Turton, Bolton; J. Whitehead, Elton, near Bury; S. Barlow and Co., Middleton and Newton Heath; Melland and Coward, Ardwick and Heaton Norris; Wm. Clemson and Co., Redbank; John Bright, Brothers, Limited, Rochdale; C. Saxby, Furniss Vale, New Mills; and Messrs. Jowett, Waterhouse, and Co., Limited, of the Grimbyes Brewery. After the usual formal business of passing report of Finance Committee, &c., the meeting was adjourned.

SOLID MAGNESIA FIRE BRICKS.

At a recent meeting of the Society of Civil Engineers, Paris, a discussion took place on the possibility of obtaining higher temperatures in steel furnaces. At present the temperature is limited by that at which the walls of the furnace begin to fuse, and even Dinas fire bricks are not proof against this. Magnesia is claimed to be capable of standing far higher temperatures than the Dinas brick. It is used, according to a statement made at the meeting referred to, by M. Lencauchez, and was first proposed by M. E. Muller in 1869. The principal difficulty in using it is the excessive shrinkage to which it is liable when heated. Thus a cube of magnesia of 10-inch edge, in the raw state, is said to shrink to one of 6-inch edge, when sufficiently calcined. For this reason furnace linings made of this material were liable to crack badly. The remedy for this state of things is to cause the magnesia to undergo its maximum possible contraction before being placed in the furnace, but for this an excessively high temperature is required. These difficulties have, it is claimed, been overcome, and M. Lencauchez showed the Paris Society of Civil Engineers a number of perfectly solid bricks of magnesia, which were as dense as granite, and had been thoroughly shrunk. On analysis the bricks are found to have the following composition:—

Silica	1.50	to	2.50
Alumina and Iron Oxide	0.75	"	1.25
Lime	1.50	+	3.00
Magnesia	96.25	"	93.25
	100.00		100.00

The high temperature required to insure that the bricks shall not be liable to further contraction is obtained by suitably designed gas kilns.

THE GAS SUPPLY OF LONDON.

THE quality of the gas supplied to the City of London for the week ending June 24, 1893, was not very good. According to the report of Mr. W. J. Dibdin, chemist and superintendent gas examiner to the London County Council, the tests made at the various testing stations showed eight deficiencies in illuminating power, five against the South Metropolitan Gas Co., and three against the Gas Light and Coke Co.; the supply pressure of both companies was at times excessively high, being 1.9 inches. The following figures have been prepared from the report, and show the average composition of the gas calculated on the mean test:—

Company.	No. of districts tested.	Illuminating power (in stand. sperm candles).	Sulphur. Grains in 100 cb. ft.	Ammonia. Grains in 100 cb. ft.	Sulphuretted hydrogen.
		Mean average.	Mean average.	Mean average.	
Gas Light and Coke Co.	14	16.37	10.68	0.35	Nil.
South Metropolitan Gas Co.	6	16.66	11.38	0.68	Nil.
Commercial Gas Co. ..	2	16.55	6.80	0.40	Nil.

The standard gas supplied by these companies should have an illuminating power of 16 sperm candles, and contain not more than 22 grains of sulphur and 4 grains of ammonia per 100 cub. ft. of gas on an average of three days, with a pressure of one inch between sunset and midnight, and six-tenths of an inch between midnight and sunset.

Legal Intelligence.

SUPREME COURT OF JUDICATURE.

COURT OF APPEAL.

(Before the Master of the Rolls, Lord Justice Bowen, and Lord Justice Kay.)

LYON V. GODDARD.

This was an appeal by the defendants from the judgment of Mr. Justice Wright at the trial of an action without a jury. The action was brought for the infringement of a patent for apparatus for purifying, disinfecting, drying, and heating. The specification stated that the invention consisted of improvements in the construction of apparatus for purifying and disinfecting wearing apparel, bedding, and other articles, by means of which all germs of disease, vermin, and the eggs thereof, could be effectually destroyed without the necessity of employing any destructive chemical agent. The body or main portion of the apparatus consisted of a chamber of wrought iron, provided with a steam-tight door, into which steam was conducted from a high-pressure boiler. This chamber, called the "inner chamber," was surrounded by an outer casing in such a manner that there was a steam-tight space or chamber, called in the specification the "outer chamber," between the outer casing and the exterior of the inner chamber. This "steam jacket," as it was also called in the argument, was heated by steam, but in such a way that the steam in the inner chamber was prevented from condensing. The steam in the inner chamber, when kept at a certain pressure, found by experience to be from 10lb. to 20lb., thoroughly penetrated the articles to be disinfected, and completely purified them without damage. The specification stated that what the plaintiff considered novel and original was "the combination and arrangement of the inner and outer chambers substantially as and for the purposes hereinbefore described and set forth." The plaintiff complained of an infringement of this patent, and claimed the usual relief. The defendants, by their defence, denied infringement, and that the plaintiff was the first and true inventor, and alleged that the plaintiff's patent was invalid. At the trial of the action Mr. Justice Wright held that the defendants had infringed the plaintiff's patent, and gave judgment in favour of the plaintiff.

The Master of the Rolls said that the question whether there had been an infringement depended on the true construction of the plaintiff's patent. Construing the patent in the way in which he thought it ought to be construed, he was of opinion that there had been an infringement. The patent claimed in respect of a combination of instruments which formed an apparatus. That apparatus consisted of all the things which were described in the specification as necessary parts of the invention. Each part might be old, but the plaintiff claimed for a combination of all of them to produce a new sort of apparatus. There was an inner chamber of a particular kind, and an outer chamber of a particular kind, each furnished with valves and other suitable fittings necessary for the working of the apparatus. There was also a steam-tight door, and there were pipes arranged in a particular manner. The plaintiff claimed for a combination of all those things producing an apparatus to disinfect clothes and other articles placed in the inner chamber by steam, the whole being so regulated that the steam in the inner chamber should not condense into water and thereby moisten and injure the articles placed inside. That which was sought to be protected by this specification was the combination and arrangement of the inner and outer chambers substantially as and for the purposes described. That being the true construction of the specification, the evidence showed that the defendants had interfered with it. The question remained whether it was a good specification. The defendants said it had been anticipated, not by a previous patent, but by the use of another apparatus, which had been spoken of as the Aberdeen apparatus. But the evidence showed that the Aberdeen machine had never worked successfully; it was inefficient; it wanted something. The plaintiff's patent was a combination of the materials of the Aberdeen machine with that something which it wanted. He was of opinion, therefore, that the Aberdeen apparatus was not an anticipation of the plaintiff's machine. The defendants further contended that the plaintiff's patent had been anticipated by other specifications and machines; but, in his opinion, they failed in each case, and he came to the conclusion that the plaintiff's patent had not been anticipated, that it was not bad for want of novelty. Lastly, it was said that there was no invention in the plaintiff's patent; no skill was required to produce such an apparatus. But the plaintiff had had experience of the Aberdeen machine and other similar machines, none of which would work effectively. He saw that some improvement was necessary, and, as he says, he took two years to think over the matter and make experiments, and in the end he found out that which was required. Such a discovery required skill and thought, and that skill and thought on the part of the plaintiff had produced a new com-

bination. The judgment of Mr. Justice Wright was correct, and the appeal must be dismissed.

The Lords Justices delivered judgments to the like effect.

Parliamentary Notes.

ADULTERATED BUTTER.

In the House of Lords on Tuesday last, the Duke of St. Albans asked her Majesty's Government whether the Danish Government had proposed a conference with the view of framing a convention to deal with the international trade in adulterated butter; and whether there was any objection to lay the papers on the table. He wished to protest against the doctrine that had been laid down by the noble lord who represented the Board of Trade in their lordships' House that a free country could not interfere with the importation of adulterated food stuff provided it was healthy and pleasant. He denied that the demand for restricting the importation of adulterated butter was one for protection under an *alias*, and that commercial freedom meant that butter should be imported from Hamburg adulterated with 20 per cent. of water. Irish farmers had been convicted at Cork, in August last, for sending butter so adulterated to market. It was unfair to the British farmer and to the honest foreign producer that they should be handicapped in the present competition by the profit arising out of fraudulent adulteration of foreign butter. It was unjust to the consumers that they should be exposed to the risk of paying for real butter and obtaining a fraudulent substitute. It was also unjust to the retailers that they might be convicted for innocently selling such adulterated butter as genuine. Under these circumstances he trusted that her Majesty's Government would favourably consider the proposal which had been made by the Danish Government that an international convention should be appointed for the purpose of checking this fraudulent trade. (Hear, hear.)

The Earl of Rosebery said that his part in this matter was a very small one—namely, to explain that a proposal for the appointment of an international convention was made by the Danish Government—but owing to the doubts expressed by the Board of Agriculture, the Board of Trade, and the Local Government Board, her Majesty's Government did not agree to the proposal. (Hear, hear.) Inasmuch as negotiations on the subject were still proceeding, it would not be right for him to lay the papers asked for upon the table of the House. The noble earl behind him would answer the question as far as it concerned the Board of Agriculture. (Hear, hear.)

The Earl of Feversham expressed a hope that the Board of Agriculture would look into the matter and see whether something could not be done to check this fraudulent trade. (Hear, hear.)

Lord Ribblesdale said that the Board of Agriculture had considered the question from the point of view of the producer and not of the consumer or distributor. He thought that the consumer and distributor were in capable hands under the Board of Trade. The Board of Agriculture thought the end in view could be much better secured by Parliament than by the philosophic and scientific inquiry recommended, but they would be glad if the Danish Government made a practical suggestion on the subject, and they would see how far they could embody it in a Bill.

Lord Belper was very glad to hear the statement of the noble lord, but feared that no legislation would be of avail unless her Majesty's Government were prepared to enforce it against adulterated butter entering this country from abroad.

IMPORTED MILK.

In the House of Commons last week, Mr. Long asked whether attention had been called to the large quantities of milk imported from Hamburg and other foreign places, and whether, if the dairies and cowsheds were subject to no proper sanitary inspection, the sale of such milk might not constitute a grave danger to the public health?

Mr. Fowler said he was informed that during the present year the value of the liquid milk and cream imported into this country was £630, being £613. from Holland and £17. from Denmark. He had no evidence that the importation of this milk constituted a danger to the public health.

THE ECCLES SEWAGE.—At the last meeting of the Eccles Town Council, Alderman Mellor moved the confirmation of the minutes of the Sewage Disposal Committee, at which a letter was read from the Secretary of the Local Government Board forwarding the Board's formal sanction to the borrowing by the Town Council of the sum of £450. for the provision of a manager's house and committee-room in connection with the sewage disposal works.—The minutes were confirmed, and on the motion of Alderman Mellor, the Council accepted the tender of Messrs. S. and J. Bentley, Leicester, to construct the sewage disposal works at Saltey for £10,499.

Correspondence.

* * We do not hold ourselves responsible for the opinions expressed by our correspondents.

ANSWERS TO CORRESPONDENTS.

J. M. AND SON.—In our opinion—No, we beg to refer you to page 81 of issue No. 198 of this Journal for further information.

DR. H. S.—They are delivered all over the country by the time you name.

J. J.—Thanks for notice.

B. AND T.—We are obliged for your letter, and trust to have further information shortly.

D. R. S.—Thanks for explanation.

J. H.—A copy was sent.

DR. F. H.—We are obliged for the information.

N. H.—There will be an article in the *Journal* treating with the matter before very long.

H. G. A.—We are inquiring into the case.

Market Reports.

TAR AND AMMONIA PRODUCTS.

The tar products market continues inanimated, and the business passing is of no moment. Makers' productions are moving off as produced, but any attempt to haggle over prices would stop business at once. The nominal price of 90's and 50 90's benzol is 1s. 6d. and 1s. 5d. respectively, but benzol is changing hands at lower prices than these. Anthracene remains as already quoted; solvent and pitch are both quiet, while crude carbolic is the only article with any life in it.

In the sulphate market, the month has opened quietly, and sales have been limited, the paucity of parcels offering being a marked feature. Values remain at £13. 1s. 3d. to £13. 5s. 0d. according to make and port of delivery. Stocks are almost *nil* and nitrate has advanced to 9s. 9d. and 10s. owing to its present scarcity.

REPORT ON MANURE MATERIAL.

The better demand for manure material, both phosphatic and nitrogenous, referred to in our last report continues, but high prices demanded by sellers stand in the way of business. The quotation for 75/80% Florida phosphate rock, 1893-94 shipment, remains 8½d. per unit, c.i.f., in cargoes to United Kingdom, but for Continent ¼d. per unit more is now asked, there being large buyers for that destination at 8½d. The position of Peace River and hot-air-dried South Carolina River rock remains unchanged.

In the absence of cargoes of River Plate bones there is no business to report, but there would be many buyers at £4. 5s. per ton, both United Kingdom and Continent. The value of crushed Kurrachee bones for autumn shipment is probably about £4. 5s. per ton, ex quay Liverpool, but there is nothing offering meantime. There are buyers of Bombay bone meal, fair average quality, autumn shipment, at £4. 7s. 6d. per ton, sellers at £4. 10s. £4. 2s. 6d. ex quay Liverpool paid for parcel of common grinding bones.

Nitrate of soda remains very firm in all positions. On spot, Liverpool, owing to reduced stocks, the value is 9s. 9d. to 10s. per cwt. Due cargoes are worth about 8s. 10½d. to 9s.; April-May sailings, 8s. 7½d. to 8s. 0d., and later shipments 8s. 9d. to 9s. 1½d.

There is nothing special to report in miscellaneous material, but there is considerable enquiry.

MISCELLANEOUS CHEMICAL MARKET.

In the alkali trade the prices for soda ash generally are easier, and the competition is still particularly active in 58% alkali, for which the bottom price does not seem to have been reached. In Leblanc makes of soda ash values may be taken at 11½d. to 11¾d. f.o.b. Ammonia alkali 58% in casks £4. 5s. to £4. 10s. per ton f.o.b. For caustic soda the demand is still somewhat slow, but values are nominally without change, viz.: f.o.b. Type 77, £11. f.o.b. Liverpool 74%,

£10. 10s.; 70%, £9. 10s.; 60%, £8. 10s.; cream 60%, £8. 5s. tenders and upwards. The prospect of limited fuel supplies may have a direct influence upon prices and supply of caustic soda. Bleaching powder continues in good request both for home and export, and full prices are readily obtainable. Chlorate of potash and soda are finding their way into the market from the hands of various resellers, and there is still a downward tendency in prices. Recovered sulphur is quiet at £4. to £4. 2s. 6d. on rails. There is an average demand for vitriol and muriatic acids, and no alterations in values to record. Carbolic acid crystals are still well maintained in price in consequence of better enquiry. Liquid carbolic acids 95-97% are slightly easier at 1s. 10d. per gallon. The advance in ammonia salts is firmly maintained and seems to have good prospect of continuance. White powdered arsenic remains somewhat scarce and price firm, nearest spot value being £13. 12s. 6d. per ton. Oxalic acid rather firmer. For aniline oil and salt there is only limited enquiry, and prices are extremely low. Caustic potash is a little firmer in price, and in carbonate 90/92% there are ample supplies at £16. 15s. 0d. nett, c.i.f. Prussiate of potash 9½d. Bichromates are without change in position. Generally, business in chemicals is reported quiet.

THE METAL MARKETS.

LONDON, WEDNESDAY.—Pig iron inactive. Scotch warrants closed at 41s. 7½d. cash. Middlesbrough 35s. cash, and hematite 44s. 8d. Copper, quiet: Chili bars, G.O.B.'s and G.M.B.'s closed at £43. 8s. 9d. to £43. 16s. 3d. cash, and £43. 17s. 6d. to £44. 5s. three months. Tin dull: Straits closed at £83. 15s. to £84. cash, and £82. 15s. to £82. 17s. 6d. three months. Australian £85. 5s. English ingots, £88. Lead, firm: Spanish, £10.; English, £10. 2s. 6d. to £10. 5s. Silesian spelter: Ordinary, £17. 12s. 6d. to £17. 15s. Antimony, £39. Quicksilver: First hands, £6. 17s. 6d.; second hands, £6. 16s. 6d. Copper shares inactive: Cape, 1½ to 1½. Copiapo, 1½ to 2. Libiola, 2½ to 3½. Mason and Barry, 1½ to 1½. Rio Tinto, 15 to 15½. Tharsis, 4½ to 4½; Namaqua, ½ to ½.

WOLVERHAMPTON, WEDNESDAY.—Further buying is temporarily suspended until the quarterly meetings next week, when good business is expected. Quotations are firm at the recent higher level. Lincolnshire pigs are quoted 45s. for forge, and 47s. to 47s. 6d. for foundry quality; Derbyshire forge, 42s. 6d. to 43s.; Barrow forge hematite, 54s. to 55s., and foundry 55s. to 57s. 6d.; Staffordshire good forge 42s. 6d., good foundry 50s. to 52s., galvanised corrugated sheets £10. 10s. to £11. Ironmasters are arranging for fuel supplies against threatening stoppage. Coal dearer.

GLASGOW, WEDNESDAY.—Market firm, with good business. Scotch done at 41s. 5½d. and 41s. 7½d. cash, and 41s. 9d. one month; closing with buyers at 41s. 7½d. cash, sellers ask 41s. 8d. Cleveland done at 35s. 0½d. cash; closing with buyers at 35s. 0½d. cash, sellers ask 35s. 1½d. Cumberland hematite closes with buyers at 44s. 8d. cash, sellers ask 44s. 10d. Middlesbrough hematite closes with buyers at 42s. 10½d. cash, sellers ask 43s. 1½d. Market closed till Friday.

LIVERPOOL OIL AND COLOUR MARKET.

WEDNESDAY.

OILS.—Palm oil continues steady, and has been sold ahead at £24. transit. The market is rather quiet to-day. Olive is steady, but is rather slow of sale. Prices range from £32. 10s. to £42 per tun, according to quality. Fine Malaga has been sold at £34. 10s. Linseed, though ruling during the early parts of the week at 22/3 to 22/6 per cwt., is to-day a shade easier at 22/- to 22/6 for Liverpool makes in export casks. Rape: Refined Stettin is neglected, with last week's quotation still holding. Cottonseed is steady, prices ruling for Liverpool refined are slightly in buyers' favour, being 22/3 to 24/3 per cwt. Castor oil is steady, good seconds Calcutta being firm and rather scarce at 23½d. per lb. First pressure French rules 23½d. to 23½d. per lb., but business is not so full as it was. Tallow is in better demand and the market is firm, with an advance in foreign quotations. Resin (common) is steady at 3/9 per cwt.; higher grades, firm. Spirits of turpentine is slightly easier in price, but there is a fair business doing at 22/9 per cwt., which is present value. Petroleum is dull: American is quoted at 43½d. to 5½d., according to quality; and Russian refined at 4d. per gallon.

COLOURS unchanged and steady. Ochres: Oxfordshire, common, £10., medium, £12., best, £15.; Derbyshire, common, 40s.; medium, 50s., best, 60s.; Welsh, best, 70s., seconds, 50s., and common, 18s.; Irish, Devonshire, 40s. to 45s.; French, J.C., 55s. to 60s.; M.C., 65s.

to 67s. 6d. Umber: Turkish quiet; Devonshire, 50s. to 55s. White lead, red lead, and oxide of zinc unchanged. Venetian red, £6. 10s. to £10. Cobalt: Prepared oxide, 9s. 9d.; black, 9s.; blue, 6s. Zaffres: No. 1, 3s. 6d.; No. 2, 2s. 6d. Oxide of iron: Common, £6.; medium, £10.; finest, £20. Zinc oxide, £23. to £25.

WEST OF SCOTLAND CHEMICALS.

GLASGOW, TUESDAY.

The stiffening process in sulphate of ammonia has received no check during the course of the week, and to-day the position for Leith spot delivery marks a further rise. Buyers are ready enough to give £13. 2s. 6d., but it is not now every seller that will part at that, and there are some holders who at the moment wait for £13. 5s., not improbably that price has already been paid. Nitrate of soda is also reported as very scarce, with a jump of the nominal quotation up to 10s. 3d.

Bleaching powder, though nominally kept at £8. 5s. Tyne, had been getting easier, and may probably have been done at £8. in a few cases. The article has again been mending in response to reduced stocks, and a quickened demand for sanitary uses, and it is likely that the £8. 5s. quotation will become the true market figure—if makers, indeed, do not lift their price another notch. In the other stock chemicals there is merely the old inactivity, but without any further lowering of quotations.

Mineral oil and paraffin values are quite unchanged, and extreme quietness prevails. The financial announcements of all the Scotch oil companies are now out. In no case is there anything for the shareholders (unprecedented), and the cause has been the excessive depression of product values, extending over the greater part of the financial year.

Chief prices current are:—Soda crystals £2. 10s. nett, Tyne; soda ash £5. 5s. 6d. nett, Tyne; refined alkali £6. 10s. nett, Tyne; alum in lump, £5. 5s. nett, Glasgow; caustic soda, white, 74° £10. 10s., 70/72° £9. 10s., 60/62° £8. 10s., and cream 60/62° £8. 5s., all nett Liverpool; bleaching powder £8. 5s. nett Tyne; saltcake 24s; borax, English refined, £30., and boracic acid, £37. 10s. nett, Glasgow; bicarbonate of soda, 5-cwt. casks, £6. 10s., and 1 cwt. casks £6. 15s. less 2½%, Liverpool; bichromate of potash, 4½d. nett, for Scotch and English deliveries (for export, 4¼d. nett f.o.b. Glasgow); bichromate of soda, 3¾d. nett, for Scotch and English deliveries (for export, 3½d. nett, f.o.b. Glasgow); chlorate of potash 8¼d. less 5% Liverpool; nitrate of soda 10s. 3d; sulphate of ammonia, spot, £13. 2s. 6d. to £13. 5s. f.o.b. Leith; ammoniac, first and second white, £37. and £35. less 2½% any port; sulphate of copper, £16. 7s. 6d., less 5% Liverpool; paraffin scale, hard and soft, 1½d. per lb; paraffin wax 120° semi-refined 2½d.; paraffin spirit (naphtha) 3¾d. a gallon; paraffin oil, burning, 4¼d. to 5¼d., at works, according to quality, for Scotch buyers (English sales about ½d. to 1d. lower); ditto (lubricating) 865° £3. 10s. to £3. 15s., 885° £4. 5s. to £5. 15s., and 890/895° £5. to £6. 10s. Week's imports of raw sugar at Greenock were 17,822 bags.

HULL PAINT, OIL, AND COLOUR REPORT.

TUESDAY.

OILS.—The half-year opens with all-round steady markets, though it is premature to prejudice any developments and attribute same to the credit or otherwise of the new half-year. It is interesting to learn that the volume of business has now reached its normal position for the first week since the strike. The export of linseed oil has improved upon last week's figures, reaching 107 tons, whilst there has been a serious falling-off in cottonseed oil by about 200 tons, the actual figures being 107 tons also. Mention is made of a tank steamer, of 1,858 tons register, to arrive shortly with petroleum from Philadelphia. There has been a very large import of turpentine during the week, the total being 15,070 cwt. Linseed oil has been steady, but not active, and prices are little changed: raw, naked spot, 20s. 9d. per cwt., 20s. 4½d. July-August, and 18s. 10½d. September-December, casks 20s., and ordinary barrels 22s. 6d. per ton extra. Refined cotton oil steady at 20s. 3d., naked spot or July-August; whilst November-April deliveries have declined about 7s. 6d. per ton, closing with sellers at 18s. 1½d., naked. Refined rape 25s. 6d., in casks Turpentine easier. Olive oil still continues in poor demand. First pressure French castor oil, 2½d. per lb. Common resin, £3. 15s. to £4. per ton. Petroleum jellies, 26s. to 28s.

CAKES—Linseed cakes are very firm in all positions, with a good demand considering the time of the year. 95%, pure, £8. 12s. 6d. to £8. 15s.; good ordinary quality £7. 5s. to £7. 10s. per ton. Cotton cakes compared with prices for hay and straw are very cheap and in

fair demand, best Egyptian £5. 7s. 6d., second quality £5. Rape cakes £3. 12s. 6d. to £3. 15s.

PAINTS.—Business in these goods continues satisfactory. Still in these goods and chemicals for shipment, a decline upon the previous week is reported there being 1,412 packages against 1,455 packages the previous week of the former, and chemicals 1,024 packages, against 2,273 packages. The prices of white and red leads and zinc are unchanged. Paints, ready mixed, in various sized packages are 28s. to 30s. per cwt. Enamels from 4s. 9d. per dozen. Oxide of iron, dry, £9. to £18. per ton; Venetian red, dry, £6. to £10. per ton. French ochre, 55s. to 60s. per ton. Fine linseed oil putty, £6. per ton.

TYNE CHEMICAL REPORT.

TUESDAY.

Chemicals, generally, show no alteration in prices. Orders are coming to hand freely, and stocks here are kept at a low level. Bleach keeps firm, and several sales have recently taken place at the full price of £8. 5s. per ton, softwoods. Prices are as under:—

Bleaching powder, softs, £8. 5s. per ton nett; hards, £8. 10s. per ton; caustic soda, 76/77%, £11. per ton, 70%, £9. 10s. per ton; recovered sulphur, 2 cwt. bags, £4. 2s. 6d. per ton; soda ash, 48%, £4. per ton, 52%, £4. 7s. 6d. per ton, 56%, £4. 15s. per ton; alkali, 36%, £3. 15s. per ton; white alkali, 48%, £4. 15s. per ton, 50%, £5. per ton, 52%, £5. 5s. per ton; hyposulphite of soda, in 5-7 cwt. casks, £7. per ton, ditto, in 1 cwt. kegs, £7. 15s. per ton; silicate of soda, 75° Tw., £2. 15s. per ton, 100° Tw., £3. 10s. per ton, 140° Tw., £3. 17s. 6d. per ton; soda crystals, in casks, £2. 10s. per ton gross weight, in 2 cwt. bags, £2. 10s. per ton nett weight; chlorate of potash, 8¾d. per lb. less 6%; pearl hardening, £3. per ton nett; pure white sulphate of alumina, £4. 2s. 6d. per ton; blanc fixe, £7. 10s. per ton; chloride of barium, £7. 10s. per ton; carbonate of alumina, £28. 15s. per ton nett; aluminate of soda, £33. 15s. per ton nett; in 5 ton lots, £28. 10s.; hydrate of barium, £10. per ton nett.

South Durham salt.—Unaltered at 8s. 6d. per ton, f.o.r., or 9s. 1d., f.o.b. Tees.

Coals.—Market is firmer, and if the action of the Federation in threatening a national strike should assume serious proportions, no doubt prices will advance. Best Northumbrian, 8s. 9d. and 9s. per ton; second quality, 8s. 3d. per ton; small steam, 3s. 6d. per ton; gas coals quiet at 6s. 3d. per ton; bunker coals 6s. and 6s. 6d. per ton; coke firm at 14s. per ton.

Reports of Companies.

THE NORTH BRITISH WATER GAS COMPANY.

An extraordinary general meeting of shareholders of the North British Water Gas Syndicate was held in Glasgow last week. Mr. James Reid Stewart (the chairman) said litigation would be disastrous to the shareholders, and the directors recommended the amalgamation of the North British Water Gas and Lancashire Water-Gas Syndicates. —Mr. Scott seconded the motion. An amendment proposed by Mr. Allan was to the effect that the directors of the North British Water-Gas Company were not authorised to concur in the amalgamation. Mr. Allan complained that the directors were playing into the hands of Mr. Sampson Fox. Interrupting, Mr. Worth, amidst great confusion, said he would continue to have faith in water gas until he found it to be a fraud. Thirteen voted for the amendment and nine for the motion. A poll was demanded. Messrs. Allan and Harvey protested against 20,000 deferred shares being used in the voting. On the respective shares being counted the total number of votes was found to be 36,635, of which 5,432 were given for the amendment and 31,203 for the motion.

THE LANCASHIRE AND YORKSHIRE WATER GAS COMPANY.

The day after the meeting of the North British Water Gas Company a meeting of shareholders in the Yorkshire and Lancashire Company, was held at the Great Northern Hotel, Leeds, under the presidency of Mr. Joseph Mitchell, for the purpose of taking into consideration the proposal to amalgamate the two companies. The chairman moved the adoption of a resolution in favour of the amalgamation of the three companies and the constitution of a new one. He said that the scheme was discussed at an informal meeting of the shareholders in December last, and had since met with the approval of a large majority of them. The scheme would involve the calling up of 10s. per share, but it had the advantages that it would avoid long and costly litigation, the extension of liability to the amount of 30s., and the retention of interest in the possible future of water gas.

The Solicitor to the company, at the request of Mr. Brooke (Shadwell), then read the terms of the proposed agreement, from which it appeared that the nominal capital of the British company was £300,000. the Yorkshire and Lancashire Company £151,000 and the North British £301,000., and that it was intended that the new company should have a capital of £250,000. in £1. shares. Mr. W. Warren (solicitor, Leeds) seconded the proposition. Mr. Brooke argued that the proposal would benefit the directors at the expense of the shareholders, and Mr. George Whitehead (Leeds), an ex-director of the Yorkshire and Lancashire Company, moved an amendment emphatically condemning any scheme of amalgamation, and refusing to sanction any expenditure with the view of further experiments in water gas, "and that a committee of investigation be appointed for the purpose of securing the winding up of the affairs of the company without delay." Mr. Thomas Orford (Liverpool) seconded the amendment. A scene of some disorder ensued, but ultimately the resolution was carried.

THE NAMAQUA COPPER CO.

The ordinary general meeting of this company was held at the City Terminus Hotel, Mr. C. Howard presiding. In moving the adoption of the report, the chairman stated that for the first time in their history they showed a loss on the year's working, the amount being £9,859. After deducting the balance brought forward, the deficiency on the year's working was £7,149. Their reserve fund, however, stood intact at £18,000. Their present position was attributable to the exhaustion of the upper portion of the mine. They had consequently been busy boring and working through barren ground, and the actual output for the past year had been 1,623 tons of ore, compared with 3,450, 4,700, 6,900, and 5,200 tons respectively in the four previous years, while the working expenses for 1892 had been at the rate of £15. a ton, compared with £7. 15s. a ton in the year of their largest production. The report of their superintendent, Mr. Phillips, showed that their prospects were encouraging. They had now, it was stated, met with what was apparently a large body of mineral, the development of which was being carried on with all possible despatch. Mr. T. K. Weir seconded the resolution, which was adopted.

DIVIDEND.

THE LAUTARO NITRATE CO., LTD.

The directors of this company recommend a dividend of 5 per cent. for the year ended December 31st, 1892.

New Companies.

Hargreaves Patent Spinning Machine Co., Ltd.—CAPITAL, £2,000., in shares of £1. each. This company has been formed to enter into an agreement between J. Hargreaves and Co., and to carry on the business of engineers, and cotton, silk, and jute manufacturers.

Lewis's, Limited.—CAPITAL, £10,000., in shares of £1. each. This company has been formed to carry on the business of chemists, druggists, etc., and dealers in all kinds of chemicals and drugs. The subscribers to the memorandum of Association are:—L. S. Cohen, Alexandra Drive, Liverpool; S. E. Levy, Market-street, Manchester,

chemist; B. S. Cohen, Somerset-road, Birmingham, general merchant; D. L. Lewis, 14, Sandringham-street, Liverpool, general merchant; A. H. Dean, 3, Park Avenue, Longsight, Manchester, buyer; J. Myers, 23, Cropper-street, Liverpool, cashier.

Stirlingshire Coal and Iron Exploration Syndicate, Ltd.—CAPITAL, £3,507., in 35 shares of £100. each, and seven £1. shares. This company has been promoted to explore grounds in the county of Stirling, Scotland, and elsewhere for iron and coal, etc.

Uttoxeter Gas Works, Ltd.—CAPITAL, £7,500., in shares of £5. each. This company has been formed to take over the Uttoxeter Gas Light and Coke Co., and to manufacture and supply light to the town of Uttoxeter and neighbourhood. The subscribers to the memorandum of Association are:—B. H. Herbert, Church-street, Uttoxeter, surgeon; R. Walker, Heath, Uttoxeter, mercer, etc.; H. Bagshaw, Uttoxeter, gentleman; H. T. Walker, Uttoxeter, plumber; F. Hawthorn, Uttoxeter, surgeon; C. H. Cowlishaw, Uttoxeter, solicitor.

The Patent List.

This list is compiled from Official sources in the Manchester Technical Laboratory, under the immediate supervision of George E. Davis and Alfred R. Davis, who report professionally upon the value of Chemical Patents.

APPLICATIONS FOR ENGLISH LETTER PATENTS.

Manufacture of Aluminium. E. Marshall. 12,001. June 12.
Machinery for Mixing Paint, etc. J. H. Hind. 12,023. June 19.
Treating Lead Fumes. G. Bischof. 12,034. June 19.
Closing and Construction of Receptacles for Ethyl Chloride, etc. J. W. Mackenzie. 12,037. June 19.
Apparatus for Producing Naphtha Soap. E. W. Stanton. 12,116. June 20.
Refrigerating Apparatus. M. Wanner. 12,120. June 20.
Artificial Silk. A. V. Newton. 12,148. June 20.
Manufacture of Colouring Matters. H. H. Lake. 12,123. June 22.
Filter "for Clearing" and Sterilizing Water. G. Michael. 12,386. June 23.
Improvements in the Manufacture of Fuel. W. B. Hartridge. 12,389. June 23.
Improvements in Fumigants. I. S. McDougall and J. T. McDougall. 12,406. June 24.
Vacuum Pumps. W. P. Abell. 12,407. June 24.
Improvements in Burning Oil in Steam Boiler and other Furnaces. A. Stewart, C. Stewart, and J. Farmer. 12,410. June 24.
Recovering Manganese Peroxide for use in obtaining Chlorine, etc. A. Campbell and W. Boyd. 12,425. June 24.
Extracting Suint from Wool. R. J. Urquhart. 12,433. June 24.
Obtaining Combustible Gases, Ammonia, and Tar from Fuel, and Apparatus Therefor. L. Mond. 12,440. June 24.
Making Spacious Compounds for the Production of Disinfecting Emulsions. F. W. Klever. 12,446. June 24.

Gazette Notices.

PARTNERSHIP DISSOLVED.

L. GROVES AND E. GANDER, chemical agents, Mark-lane, London, E.C.

IMPORTS OF CHEMICAL PRODUCTS

AT

THE PRINCIPAL PORTS OF THE UNITED KINGDOM.

LONDON.

Week ending June 24th.

Acetic Acid—

Holland, 77 pkgs. Beresford & Co.
" 20 H. Wallace & Co.
" 252 A. & M. Zimmermann
" 70 Philipps & Graves
Belgium, 2 Leach & Co.
France, 1 H. Johnson & Sons

Acetone—

Holland, 7 pkgs. A. & M. Zimmermann

Alkali—

France, 220 c. Arnati & Harrison
Germany, 105 Paton & Charles

Alumina—

Germany, 100 pkgs. Tough & Henderson

Aluminium—

France, £137 Major & Field

Ammonium Nitrate—

France, 5 pkgs. H. R. Boyer

Antimony—

Australia, 30 t. J. J. Pratt & Son
Portugal, 50 J. Bamber

Arsenic—

Germany, 35 pkgs. Burgoyne & Co.

Asbestos—

France, £67 Flageollet & Co.
Holland, 10 G. Rahn & Co.

Barytes—

Belgium, 50 bgs. H. A. Litchfield & Co.
Holland, 24 cks. J. L. Lyon & Co.
Germany, 22 W. Harrison & Co.
" 28 A. Zumbach & Co.
Belgium, 20 S. H. Willoughby
" 23 J. L. Lyon & Co.
" 50 bgs. T. H. Lee
" 22 cks. Wilkinson,
Heywood & Co.
" 41 W. Pope & Co.
Germany, 25 " "

Boracic Acid—

Italy, 40 pkgs. J. Puddy & Co.

Borax—

Germany, 3 pkgs. L. & I. D. Jt. Co.

Caoutchouc—

E. Indies, 40 c. L. & I. D. Jt. Co.
Ibo, 9 " Lewis & Peat
Madagascar, 9 L. & I. D. Jt. Co.
Germany, 11 " "
Japan, 28 " "
Rangoon, 271 Prop. Bull. W.
E. Indies, 20 A. Lawrie & Co.
U. States, 79 Major & Field
" 100 Mildred, Goyenche & Co.
Natal, 9 Procter Bros.
France, 2 Flageollet & Co.
Germany, 14 Anderson, Weber & Smith
Ceylon, 7 J. A. Hadden & Co.
Belgium, 32 W. Balchin
Rangoon, 385 J. H. & G. Scovell

Castor Oil—

Italy,	10 cs.	Beresford & Co.
France,	8 cs.	W. G. Frith & Co.
"	25	F. Boehm
"	20	J. T. Morton
"	58 brls.	A. Brown & Co.
E. Indies,	10 cs.	W. Balchin
Belgium,	20 brls.	Fuerst Bros.

Caustic Potash—

France,	6 pkgs.	Spies, Bros. & Co.
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Chemicals (otherwise undescribed)

Germany,	100 pkgs.	Domeier & Co.
"	79	T. H. Lee
"	9	Craven & Co.
"	6	Phillips & Graves
"	29	A. & M. Zimmermann
Belgium,	5	Morison, Pollexfen & Co.

Copper Sulphate—

Germany,	54 pkgs.	Charles & Fox
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Cream of Tartar—

Spain,	10 pkgs.	B. & F. Wf. Co., Ltd.
"	10	C. Christopherson & Co.
"	15	W. C. Bacon & Co.
Italy,	48	B. Jacob & Sons
France,	847	E. W. Carling & Co.
"	2	G. Ward & Sons
"	5	W. C. Bacon & Co.
"	2	J. L. Lyon & Co.
"	6	Ross & Deering
"	5	F. C. Devon & Co.
Holland,	70	Middleton & Co.

Dextrine—

Germany,	100 pkgs.	J. Barber & Co.
Holland,	43	T. H. Lee

Dyestuffs—

Anthracene	Holland,	202 pkgs.	Burt, Boulton & Co.
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Argols

Italy,	2,096 pkgs.	B. Jacob & Sons
"	51	Thames S. T. & L. Co., Ltd.
Cape,	40	Chalmers, Guthrie & Co.

Cochineal

Germany,	24 pkgs.	T. H. Lee
"	44	W. M. Smith & Sons

Cutch

Rangoon,	300 pkgs.	Anderson, Weber & Smith
"	448	Galbraith, Pembroke & Co.
"	100	A. Howden & Co.
"	1,000	Marshall & French
"	1,250	L. Lazarus & Sons
"	1,000	J. G. Bulloch & Co.
"	5	Arracan Co., Ltd.
E. Indies,	700	R. G. Hall & Co.
"	500	Ross & Deering

Extracts

France,	61 pkgs.	Union L. Co., Ltd.
Denmark,	31	Bailey & Leatham
"	6	R. J. Fullwood & Bland
"	3	Evans, Lescher & Co.
France,	565	Boutcher, Mortimore & Co.
"	100	Williams, Torrey & Co.
"	185	L. J. Levinstein & Sons
Germany,	50	A. J. Humphrey
Belgium,	10	Sawer, Sons & Co.

Gambier

E. Indies,	532 pkgs.	Brown & Elmslie
"	424	Sollas & Sons

Indigo

E. Indies,	44 cts.	L. & I. D. Jt. Co.
France,	2	Schenker & Co.
"	10	F. W. Heilgers & Co.
E. Indies,	35	Arbuthnot, Latham & Co.
"	5	von Glehn & Sons
Ceylon,	25	Tozer, Hewitt & Co.

Myrabolams

E. Indies,	1,707 pkgs.	Ross & Deering
"	716	W. Shelcott
"	170	W. Hutchinson & Co.

Orchella

Ceylon,	8 pkgs.	Hoare, Wilson & Co.
"	5	Anderson, Weber & Smith

Sumac

Italy,	400 pkgs.	Beresford & Co.
"	150	Sollas & Sons
"	450	G. S. N. Co.
"	50	Dunlop, Bros. & Co.
"	600	J. Graves
"	106	W. Shelcott

Tanner's Bark

Natal,	36 t.	A. & W. Nesbitt
Adelaide,	56	"
"	65	Baxter & Hoare
Natal,	14	Dyster, Nalder & Co.
Ceylon,	51	W. H. Cole & Co.
Belgium,	16	Arnati & Harrison
"	16	J. Harrison

Turmeric

E. Indies,	100 pkgs.	A. Howden & Co.
Germany,	20 pkgs.	T. H. Lee

Valonia

A. Turkey,	76 t.	W. H. Mitchell
"	162	A. & W. Nesbitt
"	5	Beresford & Co.
"	112	Anning & Cobb
"	50	Hicks, Nash & Co.
"	50	Boutcher, Mortimore & Co.
"	25	M. D. Co.

Farina—

Germany,	20 pkgs.	Dutruille, Solomons & Co.
"	50	J. Anderson & Co.
Holland,	100	J. Knill & Co.
Germany,	100	Prop. Scott's Wf

Glucose—

Germany,	14 pkgs.	110 c.	J. Knill & Co.
"	300	300	Baxter & Hoare
U. States,	50	286	G. White
"	50	280	Ohlenschlager Bros.
"	2 750	5,152	R. G. Hall & Co.
"	50	300	Pillow, Jones & Co.
"	300	1,669	L. & I. D. Jt. Co.
"	50	100	H. Lorenz
"	250	250	L. Sutro & Co.
"	300	300	Pickford & Co.
"	500	500	Un. Lightge. Co., Ltd.
France,	300	300	Trier, Meyer & Co.

Iodine—

Germany,	81 pkgs.	A. Gibbs & Sons
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Manure—

France,	360 t.	J. Burnett, Sons & Co.
Holland,	10	Anglo-Contl. Guano Wks.
U. States,	1,800	A. Hunter & Co.

Methyl Alcohol—

Germany,	8 dms.	Stein Bros.
Holland,	8	Lister & Biggs

Mica—

E. Indies,	£276	W. M. Smith & Sons
"	15	J. S. Disnor

Ochre—

France,	48 cks.	Beresford & Co.
Australia,	16	H. A. Litchfield & Co.
France,	10	O'Hara & Hoar
"	21 brls.	Robinson & Co.
Holland,	15 cs.	Phillips & Graves

Painters' Colours—

Germany,	22 pkgs.	L. & I. D. Jt. Co.
"	6	Phillips & Graves
"	11	5 cks. T. H. Lee
E. Indies,	25 cs.	J. H. Bower & Co.
"	7	T. Barlow & Bro.
France,	7	Hernu, Peron & Co.
"	6 cks	Arnati & Harrison
"	15 pkgs.	Flageollet & Co.
Belgium,	5	T. Palmer
Germany,	20	H. Lambert

Italy,	12	W. Harrison & Co.
U. States,	2	W. E. Peck
Australia,	1	Hernu, Peron & Co.
U. States,	143	Beresford & Co.
Holland,	60 cks.	Spies, Bros. & Co.
Italy,	3	G. S. N. Co.

Paraffin Wax—

U. States,	900 pkgs.	1,120 brls. J. H. Usmar & Co.
Rangoon,	825	Galbraith & Co.
"	570 cs.	H. Hill & Sons
U. States,	275 pkgs.	"
"	188 brls.	G. H. Frank

Phosphate Rock—

Belgium,	50 t.	Lawes Manure Co.
"	170	Odams Chmcl. Manure Co.

Pitch—

Sweden,	260 brls.	C. B. Leighton
"	101 cks.	Watts & Co.
Belgium,	7	Arnati & Harrison
Germany,	5	Blumann & Stern
Austria,	25 brls.	J. Dards

Plumbago—

Ceylon,	421 brls.	J. Thredder, Son & Co.
"	123	R. G. Hall & Co.
"	70	Doulton & Co.

Potash—

Canada,	85 c.	Charles & Fox
France,	100	F. W. Berk & Co., Ltd.

Potassium Carbonate—

France,	108 c.	J. A. Reid
"	60	Spies, Bros. & Co.

Pumice Stone—

France,	10 c.	W. Caudery & Co.
Italy,	6	Stobbs, Wilson & Co.
"	10 t.	J. Kitchin, Ltd.
"	7	Blundell, Spence & Co.
"	10 c.	W. Harrison & Co.

Pyrites—

Spain,	2,143 t.	C. Tennant, Sons & Co.
"	820	T. S. Whitehead & Co.

Rosin—

U. States,	1,500 brls.	Moore & Hole
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Saltpetre—

E. Indies,	693 bgs.	C. Wimble & Co.
"	340	Brown & Elmslie
Germany,	1,184	G. Ward & Sons
"	8 cks.	Brown & Elmslie

Silica—

Germany,	£50	A. Haacke & Co.
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Soda—

Holland,	100 pkgs.	Beresford & Co.
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Sodium Acetate—

France,	18 cks.	S. F. Waters & Co.
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Sodium Sulphide—

Belgium,	10 pkgs.	W. Allison & Co.
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Stearine—

France,	10 bgs.	T. Trapp & Sons
Belgium,	183	H. Hill & Sons
France,	120	Walbaum & Tosetti

Sulphur—

Italy,	200 t.	Brandram, Bros. & Co.
"	10	R. Morrison & Co.
"	10	Hyslop & Symonds
"	25	F. Smith
"	31	G. Boor & Co.
"	50	Elkan & Co.

Tallow & Stearine—

U. States,	10 cks.	L. P. D. Co.
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Tartaric Acid—

Holland,	6 pkgs.	J. Owen
"	20	Middleton & Co.
"	27	B. & F. Wf. Co., Ltd.
"	3	F. C. Devon & Co.
France,	20	B. & F. Wf. Co., Ltd.

Tinical—

E. Indies,	56 pkgs.	J. Puddy & Co.
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Turpentine—

Savannah,	1,000 brls.	Nickoll & Knight
"	992	Prod. Brokers Co., Ltd.

Ultramarine—

Germany,	2 cs.	O. Konig & Co.
Holland,	16	Hernu, Peron & Co.
"	4	Haefner, Hilpert & Co.
Belgium,	2	Leach & Co.
"	3	J. L. Lyon & Co.
"	5	6 pkgs. W. Harrison & Co.

Varnish—

France,	28 pkgs.	Flageollet & Co.
Belgium,	2	Stobbs, Wilson & Co.
U. States,	3	Allan, Bros. & Co.
"	10	Blundell, Spence & Co.
"	52	Taylor Bros.
Germany,	45	L. & I. Dk. Co.

White Lead—

Belgium,	13 cks.	Leach & Co.
"	14	J. L. Lyon & Co.
"	8	Stobbs, Wilson & Co.
Germany,	40	Randall Bros.
"	20	Magee, Taylor & Co.
"	20	H. Lambert
"	29	Spies, Bros. & Co.
"	22	M. Ashby, Ltd.
"	18	Elkan & Co.
"	20	G. F. Clifford
Holland,	22	"
"	29	Burrell & Co.
"	30	Blundell, Spence & Co.
"	38	A. & M. Zimmermann
"	72 brls.	W. Balchin

Zinc Oxide—

Germany,	12 cks.	Beresford & Co.
Holland,	3	J. Matton
"	20 pkgs.	Prprs. Dowgate Dk.

Zinc Sulphate—

Germany,	31 pkgs.	F. Smith
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LIVERPOOL.

Week ending June 22nd.

Acetic Acid—

Hamburg,	2 brls.	
Rotterdam,	10 blns.	

Asbestos—

Montreal,	250 bgs.	Irwin, Wapper, & Co.
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Barytes—

Bremerhaven,	22 cks.	
Antwerp,	44	50 bgs.
Rotterdam,	23	

Benzine Oil—

Rio Grande do Sul,	1,100 brls.	
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Bone Ash—

Rio Grande do Sul,	190,000 kilos.	
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Boracic Acid—

Leghorn,	22 cks.	
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Caoutchouc—

Akassa,	2 brls. 1 ck. 208 bgs.	
Antwerp,	9 cs.	Royal Niger Co.

Castor Oil—

Calcutta,	979 cs.	Ralli Bros.
"	750	
Leghorn,	5	
Antwerp,	56 brls.	

Chemicals (otherwise undescribed)

In transit,	7 pkgs.	Cunard S. S. Co., Ltd.
Rotterdam,	8 cks.	

Colours—

Fustic New York, 1,436 ps.	
Fustic Extract Philadelphia, 50 brls.	
Gambler Singapore, 873 bls.	
Logwood Norfolk, 57 ps.	
Madder Rotterdam, 1 ck.	
Myrabolams Calcutta, 451 bgs.	
Orchella Lisbon, 25 bls. 25 bgs. A. Barbosa & Co.	
Saffron Valencia, 1 cs.	
Sumac Palermo, 200 bgs. J. Kitchen, Ltd.	
Turmeric Bordeaux, 100 43 bls.	
Valonia Calcutta, 185 bgs.	
Smyrna Smyrna, 150 t. Barry Bros.	
Patras Patras, 95 25 bgs. G. E. Spiropulo	
Farina Fiume, 100 bgs. A. Banmannko & Co.	
Glucose New York, 300 brls. 88 cks.	
Limestone Antwerp, 3 crts. J. T. Fletcher & Co.	
Manganese Oporto, 200 t. 312 Wigan Coal & Iron Co.	
Manure Rio Grande do Sul, 725 bgs.	
Naphtha Philadelphia, 4,400 brls.	
Ochre Bordeaux, 17 cks.	
Paint Boston, 20 cs.	
Phosphates Montreal, 295 t. Brit. Phosphate Co.	
Potashes Ghent, 100 bgs.	
Potassium Chlorate Montreal, 25 brls. Wilson, Paterson, & Co.	
Pyrates Huelva, 1,723 t. Matheson & Co.	
Rosin New York, 1,536 brls. 156 cks.	
Saltpetre Calcutta, 1,122 bgs. Ralli Bros.	
Soap Hamburg, 5 cks. 10 kgs.	
Soapstone Philadelphia, 900 bxs. 75 cs. Intntl. Bank, London	
Soda Bari, 125 cs. 141 2 Langstaff & Co.	
Stearine New York, 141 2	
Sulphur Rotterdam, 10	
Talc Bordeaux, 100 bgs. G. G. Blackwell	
Tallow Fiume, 200	
Tartar Rotterdam, 3 cks.	
Antwerp Antwerp, 54 bgs.	
Sulphur Bari, 31 brls. 440 120 t. 340 bgs.	
Catania Catania, 440 120 t. 340 bgs.	
Talc Fiume, 100 bgs.	
Tallow Philadelphia, 309 tcs. 69 hds. 800 100	
New York New York, 449 bgs. R. J. Francis & Co.	
Rouen Rouen, 449 bgs. R. J. Francis & Co.	
Tartar Naples, 2 cks.	
Palermo Palermo, 4	
Bordeaux Bordeaux, 8	
Hamburg Hamburg, 1 9 kgs.	

Tartaric Acid Rotterdam, 4 cks. Sachse & Klemm	
" " 16	
Turpentine Bordeaux, 1 ck.	
Ultramarine In transit, 50 cs. 15 2 cks.	
White Lead Ghent, 1 ck. J. T. Fletcher & Co.	
Zinc Ashes Marseilles, 84 brls.	
Zinc Oxide Antwerp, 50 brls. J. T. Fletcher & Co.	
" " 30	

HULL.

Week ending June 24th.

Alum Rotterdam, 36 cks. W. & C. L. Ringrose	
Barytes Antwerp, 109 cks. 140 210 bgs. Bailey & Leatham	
" " 65	
Castor Oil Trieste, 17 cs. Wilson, Sons, & Co., Ltd.	
Chemicals (otherwise undescribed) Hamburg, 1 dm. 4 cs. 2 cks. 8 brls. Wilson, Sons, & Co., Ltd.	
Dunkirk Dunkirk, 30 pks. Wilson, Sons, & Co., Ltd.	
Antwerp Antwerp, 102 2 cks. Veltmann & Co. J. Pyefinch & Co.	
Stettin Stettin, 1 cs. 2	
Bremen Bremen, 1 cs. 2	
Colours Rotterdam, 8 cs. 3 cks. 14 brls. Hutchinson & Son	
Flushing Flushing, 8 cs. 34 cks. Wilson, Sons, & Co., Ltd.	
Hamburg Hamburg, 1 25 brls. G. Lawson & Sons	
Antwerp Antwerp, 6 pks. Bailey & Leatham	
" " 2 cks. Wilson, Sons, & Co., Ltd.	
Rotterdam Rotterdam, 84 pks. W. & C. L. Ringrose	
Amsterdam Amsterdam, 2 cks. "	
Ghent Ghent, 51 50 kgs. Wilson, Sons, & Co., Ltd.	
Stettin Stettin, 20 cks. J. Pyefinch & Co.	
Bremen Bremen, 3 cs. 9	
Dextrine Stettin, 51 bgs. Wilson, Sons, & Co., Ltd.	
Dyestuffs Alizarine Rotterdam, 13 brls. Hutchinson & Son	
" " 279 pks. W. & C. L. Ringrose	
Fustic Trieste, 5 t. Wilson, Sons & Co., Ltd.	
Madder Rotterdam, 3 cks. Wilson, Sons, & Co., Ltd.	
Valonia Smyrna, 645 t.	
Farina Hamburg, 350 bgs. Wilson, Sons, & Co., Ltd.	
Dunkirk Dunkirk, 4 sks. 25 "	
Antwerp Antwerp, 350 850 Wilson, Sons, & Co., Ltd.	
Stettin Stettin, 850	
Glucose New York, 65 brls. Wilson, Sons, & Co., Ltd.	
Dunkirk Dunkirk, 27 cks. Hutchinson & Son	
Rotterdam Rotterdam, 21 cs. "	
New York New York, 200 brls. Wilson, Sons & Co., Ltd.	
Stettin Stettin, 27 cks. "	
" " 500 bgs.	

Guano Rotterdam, 1 bg. W. & C. L. Ringrose	
Mineral White Trieste, 50 bgs.	
Ochre Rouen, 69 cks.	
Paint New York, 35 cs. Wilson, Sons, & Co., Ltd.	
" Copenhagen, 1 ck. "	
Phosphate Ghent, 81 t.	
Pitch Amsterdam, 13 cks. H. F. Pudsey	
Pumice Stone Messina, 40 bgs. Wilson, Sons, & Co., Ltd.	
Quicksilver Hamburg, 2 botls. Wilson, Sons, & Co., Ltd.	
Rosin Rotterdam, 7 cks. G. Lawson & Sons	
Saltpetre Antwerp, 135 bgs. Wilson, Sons, & Co., Ltd. C. M. Loft-house & Co.	
Hamburg Hamburg, 10 kgs.	
Soap Gothenburg, 1 cs. Wilson, Sons, & Co., Ltd.	
" New York, 513 pks. 100 cs. "	
Stearine Antwerp, 10 bgs.	
Tallow Antwerp, 1 ck. Wilson, Sons, & Co., Ltd.	
" New York, 100 brls. 50 tcs. "	
Tar Amsterdam, 9 cks. W. & C. L. Ringrose	
" " 2 brls. Sissons, Bros. & Co.	
Dunkirk Dunkirk, 48	
Tartaric Acid Rotterdam, 10 cks. Hutchinson & Son	
" " 2 W. & C. L. Ringrose	
Ultramarine Rotterdam, 2 cks. A. Sanderson & Co.	
" " 4 Todd & Son	
Varnish New York, 32 pks.	
White Lead Rotterdam, 20 cks. W. & C. L. Ringrose	
" Antwerp, 26 Tudor & Sons	
" " 15 Bailey & Leatham	
Zinc Oxide Rotterdam, 100 brls. Hutchinson & Son	

GLASGOW.

Week ending June 29th.

Alum Rotterdam, 21 cks. J. Rankine & Son	
Barium Sulphate Antwerp, 450 bgs. 41 cks.	
Barytes Rotterdam, 46 cks. 38 J. Rankine & Son	
Castor Oil Antwerp, 28 cks.	
Chemicals (otherwise undescribed) Hamburg, 2 cs.	
Chrome Alum Rotterdam, 10 brls. J. Rankine & Son	
Colours Rotterdam, 48 pks. 5 cks.	
Antwerp Antwerp, 67 4 cs.	
Hamburg Hamburg, 1 kg.	
Cream of Tartar Oporto, 6 cks. J. & P. Hutchinson	

Dyestuffs Alizarine Rotterdam, 44 pks. 6 cks. 54 J. Rankine & Son	
Extracts Trieste, 1,000 brls.	
Antwerp Antwerp, 13 cks.	
Farina Delfryl, 500 bls. 320 bgs.	
Hamburg Hamburg, 320 bgs.	
French Chalk Fiume, 100 bgs.	
Glucose New York, 184 brls.	
Phosphates Antwerp, 1,000 bgs.	
Potash Hamburg, 21 cks. 40	
Rotterdam Rotterdam, 40	
Pumice Stone Messina, 2 cks. 15 cs.	
Pyrates Huelva, 1,704 t. Seville Sulphur & Copper Co., Ltd.	
Salt Montreal, 1 ck.	
Saltpetre Hamburg, 160 kgs. 37 cks.	
Tartar Bordeaux, 4 cks.	
Waste Salt Hamburg, 136 cks.	
White Lead Rotterdam, 50 cks. 36 J. Rankine & Son	
" " 36	
Zinc Oxide Rotterdam, 25 cks. 30	
Antwerp Antwerp, 30	

TYNE.

Week ending June 24th.

Barytes Antwerp, 21 cks. Tyne S. S. Co.	
Colours Rotterdam, 5 cs. Tyne S. S. Co.	
Limestone Antwerp, 10 crts. Tyne S. S. Co.	
Phosphate Antwerp, 260 t. Langdale's Chml. Manure Co.	
Salt Hamburg, 250 bgs. Tyne S. S. Co.	
Saltpetre Hamburg, 3 cks. Tyne S. S. Co.	
Stearine Antwerp, 6 bgs. Tyne S. S. Co.	
Sulphate of Lead Stavanger, 34 cks.	
Sulphur Huelva, 31 t. A. Guthrie	
Tartaric Acid Rotterdam, 5 cks. Tyne S. S. Co.	
Varnish Antwerp, 5 cks. Tyne S. S. Co.	

GOOLE.

Week ending June 21st.

Caoutchouc Boulogne, 8 cks.	
Dyestuffs (otherwise undescribed) Boulogne, 57 cks. 27 cs. 2	
Potash Rotterdam, 10 cks. 19 dms.	
Pyrates Seville, 1,100 t.	
Saltpetre Rotterdam, 100 bgs.	
Waste Salt Hamburg, 1,352 cks.	

GRIMSBY.

Week ending June 24th.

Caoutchouc Hamburg, 7 pks. 3 bls.	
Antwerp Antwerp, 3 bls.	
Chemicals (otherwise undescribed) Hamburg, 14 cks. 10 cs.	
Dyestuffs (otherwise undescribed) Dieppe, 32 cs.	

EXPORTS OF CHEMICAL PRODUCTS OF THE PRINCIPAL PORTS OF THE UNITED KINGDOM.

LONDON.			Tar			Sulphur—			Caustic Potash—		
Week ending June 28th.			Gothenburg,	50 cks.	£33	Algoa Bay,	100 kgs.	£51	New York,	5 t. 3 c.	£108
Acids—			Boston,	125	70	Calcutta,	30 t.	183	Barcelona,	1 7	29
Algoa Bay,	18 cks.	£25	Natal,	650 drs.	57	Portland, O.,	10 11 c.	75	Caustic Soda—		
Lisbon,	3 cks.	20	Gaulois, N'd.,	45 pkgs.	21	Pernambuco,	2 17 60 kgs.	49	Alicante,	30 dms.	
Cape Town,	15 pkgs. 2 kgs 9 cs.	69	Danzig,	677 brls.	320	Sulphuric Acid—			Callao,	72	
Alkali—			Treport,	100	43	E. London,	18 cs.	£14	Fiume,	87	
Seville,	5 c.	£2	Toluol			Cape Town,	2 t. 1 c.	16	Galatz,	100	
San Sebastian,	1 t.	11	Rotterdam,	20 cks.	£175	Superphosphate—			Malaga,	20	
Alum Cake—			Coal Products (otherwise undes.)			Auckland,	101 t.	£379	Montreal,	75 100 pkgs.	
Calcutta,	50 t. 2 c.	£175	Sydney,	25 brls.	£24	Reval,	191	573	New York,	350 100 brls.	
Aluminous Cake—			Copperas—			Madeira,	10	26	Odessa,	100	
Copenhagen,	43 t. 17 c.	£105	Santos,	2 t. 10 c.	£36	Tartaric Acid—			Piræus,	50	
Ammonia (Liquid)—			Copper Sulphate—			Adelaide,	1 t. 5 c.	£135	St. John's, Nfld.,	4	
B. Ayres,	15 cs.	£23	Ghent,	15 t.	£244	B. Ayres,	10 kgs.	51	St. Stephens,	100	
Bombay,	5	9	Lisbon,	35	20	Napier,	6	33	Seville,	90 kgs 165	50
Ammonium Carbonate—			B. Ayres,	1 5 c.	20	Sydney,	2	11	Singapore,	6	
Norwoking,	12 c.	£16	Cape Town,	13	9	LIVERPOOL.			Yokohama,	100	
Amsterdam,	15	22	Cream of Tartar—			Week ending June 28th.			Almeria,	14 5 cks.	
Ammonium Chloride—			Montreal,	2 cks.	£56	Acetic Acid—			Bahia,	10	
Gothenburg,	1 t. 2 c.	£36	Townsville,	5 c.	20	Rio de Janeiro,	2 t. 18 c.	£40	Baltimore,	133	
Constantinople,	1 4	40	Napier,	4	16	Alum—			Barcelona,	598 60	
Wellington,	5	16	Brisbane,	1 t. 7	114	Montreal,	17 t. 19 c.	£88	Carthage, Sp.	15 6 cs.	
Varna,	15	24	Sydney,	1 4	97	Malaga,	3 2	18	Guadalajara,	600	
Ammonium Sulphate—			Melbourne,	10	38	Malta,	1 10	8	Hamburg,	500	
Demerara,	33 t. 19 c.	£450	Disinfectants—			Bombay,	10 6	55	Havana,	100	
Hamburg,	35	455	Natal,	40 pkgs.	£69	Galatz,	9 15	58	Lisbon,	30	
Rotterdam,	20 3	250	Hamburg,	2 t. 20 cks.	260	Aluminous Cake—			Naples,	35	
Martinique,	20	244	Guano—			Alcalut,	17 t. 7 c. 2 q.	£63	Palermo,	10	
Arsenic—			Dominica,	2 t. 6 c.	£25	Barcelona,	3 t. 1 c. 1 q.	£89	Port Elizabeth,	18 bxs.	
Calcutta,	1 t.	£16	Manure—			Hamburg,	2	58	Rangoon,	5	
Napier,	1	16	Demerara,	34 t.	£340	Ammonium Carbonate—			Rotterdam,	101	
Wellington,	5	81	Auckland,	20	49	Barcelona,	3 t. 1 c. 1 q.	£89	St. Petersburg,	150	
Borax—			Lyttelton,	4	10	Hamburg,	2	58	Savannah,	10	
Pr. Elizabeth,	45 kgs.	£70	Natal,	10 c.	15	Ammonium Chloride—			Chemicals (otherwise undescribed)		
Brisbane,	10 c.	67	St. Kitts,	16 10 c.	168	Antwerp,	1 t. 14 c. 2 q.	£36	Genoa,	10 c. 3 q.	£16
Hamburg,	8 6 cks.	15	Hamburg,	9 17	90	Philadelphia,	15 15 3	394	Rotterdam,	2 t. 9 2	98
Carbolic Acid—			Oxalic Acid—			Kurrachee,	18	29	Seville,	5	10
Hamburg,	2 cks.	£15	Calcutta,	4 c.	£6	B. Ayres,	10	19	Venice,	10	19
Calcutta,	40 drs.	19	Melbourne,	1 t. 7	36	Shanghai,	5	8	Syria,	15	24
E. London,	1 c.	12	Phosphate—			Salaora,	4	7	Kustendjie,	1 6	42
Hong Kong,	10 c.	19	Trinidad,	32 t.	£80	Montreal,	1 13	37	Naples,	10 2	17
Marseilles,	40	145	Phosphoric Acid—			Yokohama,	4 1	126	Quebol,	8	12
Rotterdam,	25	130	Penang,	3 t.	£48	Genoa,	3 2	61	Lisbon,	1 5 2	12
Carbon Bisulphide—			Phosphorus—			Valparaiso,	4 19 3	105	Alexandria,	5	164
Philadelphia,	7 t. 7 c.	£120	Sydney,	1 cs.	£10	Ammonium Sulphate—			China Clay—		
Caustic Soda—			Potash—			Sourabaya,	131 t.	£1,669	Melbourne,	4 cks.	
Pr. Elizabeth,	2 t. 3 c.	£42	B. Ayres,	2 cs.	£8	Passages,	10 6 c. 2 q.	130	Bombay,	30 t.	
Natal,	10	8	Potash Salts—			New York,	24 8	336	Boston,	280	
Brisbane,	5 9	56	Cleveland Bay,	3 t. 9 c.	£308	Samarang,	102 11 3	1,140	Calcutta,	91 10 c.	
Algoa Bay,	4	7	Calcutta,	10 c	£22	Tegal,	51 9 3	554	Rio de Janeiro,	4 10	
E. London,	10	16	Potassium Bichromate—			Las Palmas,	7 15	99	Chloroform—		
Mauritius,	7 10	110	Potassium Chlorate—			Valencia,	56 10	622	Montreal,	2 cs.	
Portland, O.,	10 10	109	Melbourne,	1 t.	£20	Bordeaux,	16	176	Citric Acid—		
Melbourne,	20 1	197	Potassium Iodide—			Malaga,	66 2 2	893	Mexico City,	1 c. 3 q.	£15
Hong Kong,	1 1	19	Brussels,	1 cs.	£35	Arsenic—			Coal Products—		
Santos,	22	220	Potassium Sulphate—			B. Ayres,	2 t.	£43	Alizarine Oil		
Chemicals (otherwise undescribed)			Sydney,	1 t. 18 c.	£21	Bleaching Powder—			Rio de Janeiro,	7 pkgs	
Algoa Bay,	170 kgs.	£60	Saltpetre—			Boston,	491 cks.		Aniline Colours		
Kabat,	11 c.	64	Cape Town,	10 c.	£11	Corfu,	10 brls.		Canada,	6 kgs. 1 ck. 1 cs.	
Wellington,	6 pkgs. 13 cs.	64	Rangoon,	10	11	Ghent,	53		New York,	9	
Rotterdam,	5	12	Pernambuco,	30 t. 11	687	Montreal,	92		Aniline Dyes		
Citric Acid—			Vigo,	15	16	New York,	342		Pernambuco,	1 cs.	
Demerara,	2 c.	£18	Santos,	8 19	194	Seville,	2		Aniline Salts		
Natal,	1 cs.	10	Sheep Dip—			Venice,	6		Philadelphia,	18 c. 3 q.	£60
Barcelona,	13 cks.	502	Cape Town,	175 cks.	£425	Constantinople,	23		Cresote Oil		
Hamburg,	5 10	243	Pr. Elizabeth,	350 cs.	1,050	Lisbon,	46		Bordeaux,	20 dms.	
Amsterdam,	6 kgs.	49	E. London,	350	1,050	Rosario,	6 13	15	Mirbane Oil		
Coal Products—			Durban,	250	750	Borate of Lime—			Hamburg,	10 cs.	
Aniline Oil			Natal,	5 t. 12 c. 20 cs.	269	Hamburg,	5 t.	£60	Pitch		
Rotterdam,	24 drs.	£700	San Francisco,	100	125	Borax—			Vigo,	30 brls.	
Anthrascene			Algoa Bay,	100 drs.	41	B. Ayres,	1 t. 3 c. 1 q.	£29	Antwerp,	473 t.	
Rotterdam,	122 cks.	£800	Soda Ash—			Sydney,	5	8	Tar		
Hamburg,	50	172	Maranham,	12 t. 19 c.	£75	Hamburg,	2 18	77	Kurrachee,	97 brls.	
Benzol			Portland, O.,	5 11	27	Vera Cruz,	1 6 1	39	Tar Oil		
Rotterdam,	65 cks.	£134	Melbourne,	3 3	17	Borate of Lime—			Algoa Bay,	6 cks.	
Treport,	12	154	Santos,	14	82	Calcium Chloride—			Copperas—		
Calais,	12	106	Soda Crystals—			Christchurch, N.Z.,	3 t. 7 c.	£8	Janina,	2 t. 10 c.	£5
Cresote Oil			Suez,	17 c.	£3	Rosario,	6 13	15	Calcutta,	13 7 2 q.	23
Naphthaline			Gaulois, N'd.,	1 t.	6	Caoutchouc—			Bombay,	16 3 2	29
Marseilles,	32 cks.	£36	Sodium Biorate—			Santos,	2 cs.		Copper Sulphate—		
Amsterdam,	9	12	Algoa Bay,	20 kgs.	£31	Carbolic Acid—			Genoa,	9 t. 19 c. 1 q.	£180
Hamburg,	15	125	Sodium Carbonate—			Marseilles,	3 t.	£210	Zacatecas,	12 3	196
Pitch			Algoa Bay,	2 t.	£24	B. Ayres,	8 18 c. 2 q.	250	M. Video,	13 9	216
St. Nazaire,	1,000 t.	£1,400	Barbadoes,	1	7	Philadelphia,	9 3	27	Nantes,	106 3	1,698
Rotterdam,	345	414	Sodium Phosphate—			St. Petersburg,	9 10 2	190	Naples,	2 4	40
Boston,	125 cks.	65	Boulogne,	3 c.	£25	Hamburg,	1 16 3	100	Harve,	10 1	163
Portland, O.,	200	117	Strontium Nitrate—			Boston,	2	130	Bordeaux,	149 3 1	2,393
Galatz,	30 40 brls.	21	New York,	2 t. 2 c.	£53				Rotterdam,	2 1 2	33
Harve,	240	285							Lisbon,	32 15 3	526
Christiania,	70 pkgs.	37							Dunedin,	2	31
Thrall,	50	18							Calcutta,	1	16
New York,	250	130							Valparaiso,	10 2	8
									Bordeaux,	157 2	2,523
									Fiume,	15 2 1	222

Disinfectants— Piraeus, 3 cs. £5	Phosphorus— Vera Cruz, 8 c. 2 q. £100 Kobe, 36 cs. 4 3 485 B. Ayres, 1 t. 12 2 220 Hiogo, 60 cs. 772 Shanghai, 21 208	Opobo, 2,620 Penang, 10 Philadelphia, 20 Pt. Elizabeth, 1,106 131 Pt. Natal, 237 Rangoon, 530 St. Johns, 165 St. Johns, Nfld., 24 Savannah, 15 Shanghai, 8,073 Sierra Leone, 220 Singapore, 850 5 Teneriffe, 309 Trinidad, 1,730 Valparaiso, 200 Warre, 120 Berne, 400 Brussels, 3 Cal'ao, 4 C. C. Castle, 140 Curacao, 120 Lausanne, 1 Lisbon, 4 Piraeus, 421 Singapore, 50 Sinoe, 5	Ghent, 10 Halifax, 190 Hamburg, 55 5 Montreal, 11 New York, 300 Rotterdam, 75 Savannah, 1 cs. Seville, 30 Sydney, 197 Toronto, 100 Wellington, N.Z., 4 142 kgs.
Iron Sulphate— Montreal, 5 t. 1 q. £8	Picric Acid— New York, 10 c. £50	Savannah, 15 Shanghai, 8,073 Sierra Leone, 220 Singapore, 850 5 Teneriffe, 309 Trinidad, 1,730 Valparaiso, 200 Warre, 120 Berne, 400 Brussels, 3 Cal'ao, 4 C. C. Castle, 140 Curacao, 120 Lausanne, 1 Lisbon, 4 Piraeus, 421 Singapore, 50 Sinoe, 5	Sodium Bichromate— Ghent, 24 cs.
Lime— Iquitos, 1 t. 15 c. 3 q. £5 Little Popo, 2 3 8	Plumbago— Valparaiso, 10 cks.	Savannah, 15 Shanghai, 8,073 Sierra Leone, 220 Singapore, 850 5 Teneriffe, 309 Trinidad, 1,730 Valparaiso, 200 Warre, 120 Berne, 400 Brussels, 3 Cal'ao, 4 C. C. Castle, 140 Curacao, 120 Lausanne, 1 Lisbon, 4 Piraeus, 421 Singapore, 50 Sinoe, 5	Sodium Carbonate— New York, 196 brls. Boston, 84
Magnesia— New York, 35 cs. M. Video, 6 cks. Pernambuco, 2 Rosario, 2	Potassium Bichromate— Alexandretta, 15 c. 3 q. £32 Ghent, 2 t. 9 3 97	Savannah, 15 Shanghai, 8,073 Sierra Leone, 220 Singapore, 850 5 Teneriffe, 309 Trinidad, 1,730 Valparaiso, 200 Warre, 120 Berne, 400 Brussels, 3 Cal'ao, 4 C. C. Castle, 140 Curacao, 120 Lausanne, 1 Lisbon, 4 Piraeus, 421 Singapore, 50 Sinoe, 5	Sodium Peroxide— Bombay, 2 c. 3 q.
Magnesium Acetate— Rio de Janeiro, 1 c. £8	Potassium Carbonate— New York, 5 t. 18 c. £114	Savannah, 15 Shanghai, 8,073 Sierra Leone, 220 Singapore, 850 5 Teneriffe, 309 Trinidad, 1,730 Valparaiso, 200 Warre, 120 Berne, 400 Brussels, 3 Cal'ao, 4 C. C. Castle, 140 Curacao, 120 Lausanne, 1 Lisbon, 4 Piraeus, 421 Singapore, 50 Sinoe, 5	Sodium Silicate— Alicante, 32 cs. Barcelona, 130 brls. Brisbane, 8 Carthagena, Sp., 26 Constantinople, 7 11 dms La Libertad, 6 Oporto, 200 Pasages, 100 17 Seville, 10 Toronto, 8 Valencia, 17 Venice, 17
Magnesium Chloride— Bombay, 6 t. 10 c. £16	Potassium Chlorate— Santander, 10 c. £39 Shanghai, 1 t. 10 94 Kobe, 5 367 Hiogo, 15 849 Antwerp, 2 130 Gothenburg, 1 56 New York, 41 5 2,189 M. Video, 2 5 18 St. Petersburg, 2 140 Hamburg, 10 28 Boston, 1 10 88	Savannah, 15 Shanghai, 8,073 Sierra Leone, 220 Singapore, 850 5 Teneriffe, 309 Trinidad, 1,730 Valparaiso, 200 Warre, 120 Berne, 400 Brussels, 3 Cal'ao, 4 C. C. Castle, 140 Curacao, 120 Lausanne, 1 Lisbon, 4 Piraeus, 421 Singapore, 50 Sinoe, 5	Sodium Sulphate— Boston, 93 brls.
Magnesium Sulphate— Santander, 4 t. 19 c. £21 Bombay, 75 kgs. St. Petersburg, 7 cks.	Potassium Silicate— Valencia, 7 t. 13 c. £33	Savannah, 15 Shanghai, 8,073 Sierra Leone, 220 Singapore, 850 5 Teneriffe, 309 Trinidad, 1,730 Valparaiso, 200 Warre, 120 Berne, 400 Brussels, 3 Cal'ao, 4 C. C. Castle, 140 Curacao, 120 Lausanne, 1 Lisbon, 4 Piraeus, 421 Singapore, 50 Sinoe, 5	Sulphur— Montreal, 3 t. New York, 10 Boston, 200 14 c. Calcutta, 15 Para, 10
Manganese— Melbourne, 1 ck.	Potassium Stannate— Bombay, 1 t. 8 c. 1 q. £111	Savannah, 15 Shanghai, 8,073 Sierra Leone, 220 Singapore, 850 5 Teneriffe, 309 Trinidad, 1,730 Valparaiso, 200 Warre, 120 Berne, 400 Brussels, 3 Cal'ao, 4 C. C. Castle, 140 Curacao, 120 Lausanne, 1 Lisbon, 4 Piraeus, 421 Singapore, 50 Sinoe, 5	Sulphuric Acid— Kurrachee, 100 cs.
Manganese Sulphate— St. Petersburg, 1 t. 15 c. 2 q. £40	Rosin— Kurrachee, 20 brls.	Savannah, 15 Shanghai, 8,073 Sierra Leone, 220 Singapore, 850 5 Teneriffe, 309 Trinidad, 1,730 Valparaiso, 200 Warre, 120 Berne, 400 Brussels, 3 Cal'ao, 4 C. C. Castle, 140 Curacao, 120 Lausanne, 1 Lisbon, 4 Piraeus, 421 Singapore, 50 Sinoe, 5	Varnish— Bilbao, 6 dms. Bombay, 10 cs. 30 5 cks. Kentville, 1 Lisbon, 10 Port Elizabeth, 1 3 15 Demerara, 1 Montreal, 1 Naples, 2 Santos, 11 1 4 1 Seville, 8
Manure— Barbadoes, 80 t. £740	Salt— Akassa, 400 t. Amsterdam, 160 Antwerp, 170 Axim, 5 Benin, 8 18 c. Boston, 1,200 B. Ayres, 103 4 Calcutta, 1,318 Cameroons, 43 9 Cape Palmas, 1 10 Cape Town, 25 Ghent, 135 Loango, 16 Melbourne, 200 Montreal, 768 New Orleans, 65 New York, 1,491 Oreah, 145 Port Natal, 2 Rotterdam, 272 San Francisco, 832 500 sks. Sierra Leone, 100 Tuborg, 185 Adjudah, 5 Algoa Bay, 17 16 Archangel, 200 Bakana, 50 Christiania, 499 Malta, 5 M. Video, 12 19 Rangoon, 1,981 St. Johns, Nfld., 3 20 brls. Shanghai, 200 Traschina, 200	Savannah, 15 Shanghai, 8,073 Sierra Leone, 220 Singapore, 850 5 Teneriffe, 309 Trinidad, 1,730 Valparaiso, 200 Warre, 120 Berne, 400 Brussels, 3 Cal'ao, 4 C. C. Castle, 140 Curacao, 120 Lausanne, 1 Lisbon, 4 Piraeus, 421 Singapore, 50 Sinoe, 5	White Lead— Guantanamo, 1 ck. Calcutta, 160 kgs.
Metallic Sodium— Rotterdam, 2 t. 11 c. 1 q. £506	Saltpetre— Pera, 1 t. £22	Savannah, 15 Shanghai, 8,073 Sierra Leone, 220 Singapore, 850 5 Teneriffe, 309 Trinidad, 1,730 Valparaiso, 200 Warre, 120 Berne, 400 Brussels, 3 Cal'ao, 4 C. C. Castle, 140 Curacao, 120 Lausanne, 1 Lisbon, 4 Piraeus, 421 Singapore, 50 Sinoe, 5	Week ending June 24th.
Muriate of Lime— Sydney, 9 t. 11 c. £22	Sheep Dip— M. Video, 1 t. 3 q. £15 Algoa Bay, 2 40 Punta Arenas, 1 50	Savannah, 15 Shanghai, 8,073 Sierra Leone, 220 Singapore, 850 5 Teneriffe, 309 Trinidad, 1,730 Valparaiso, 200 Warre, 120 Berne, 400 Brussels, 3 Cal'ao, 4 C. C. Castle, 140 Curacao, 120 Lausanne, 1 Lisbon, 4 Piraeus, 421 Singapore, 50 Sinoe, 5	Alkali— Abo, 1 ck. Riga, 208 kgs. 52
Ochre— Demerara, 40 kgs. Hamburg, 172 bgs.	Soap— Aden, 200 bxs. 450 bdl. Alexandria, 238 9 cs. Algoa Bay, 2,040 Antwerp, 213 Barbadoes, 600 Batavia, 1,310 47 Benin, 150 Bermuda, 100 Bombay, 3,305 Bussorah, 50 Calcutta, 4 250 Cape Town, 2,315 Colon, 50 Constantinople, 101 Durban, 50 E. London, 1,416 54 Gibraltar, 465 Grand Bassa, 100 " Bassam, 2 " Canary, 822 Hamburg, 20 1 Kurrachee, 1,510 Lagos, 50 Malta, 2 Mossel Bay, 170 New York, 150 30 frks. Old Calabar, 1,300	Savannah, 15 Shanghai, 8,073 Sierra Leone, 220 Singapore, 850 5 Teneriffe, 309 Trinidad, 1,730 Valparaiso, 200 Warre, 120 Berne, 400 Brussels, 3 Cal'ao, 4 C. C. Castle, 140 Curacao, 120 Lausanne, 1 Lisbon, 4 Piraeus, 421 Singapore, 50 Sinoe, 5	Ammonium Sulphate— Rouen, 200 bgs Rotterdam, 291
Oxalic Acid— Genoa, 13 c. 2 q. £23	Soap— Aden, 200 bxs. 450 bdl. Alexandria, 238 9 cs. Algoa Bay, 2,040 Antwerp, 213 Barbadoes, 600 Batavia, 1,310 47 Benin, 150 Bermuda, 100 Bombay, 3,305 Bussorah, 50 Calcutta, 4 250 Cape Town, 2,315 Colon, 50 Constantinople, 101 Durban, 50 E. London, 1,416 54 Gibraltar, 465 Grand Bassa, 100 " Bassam, 2 " Canary, 822 Hamburg, 20 1 Kurrachee, 1,510 Lagos, 50 Malta, 2 Mossel Bay, 170 New York, 150 30 frks. Old Calabar, 1,300	Savannah, 15 Shanghai, 8,073 Sierra Leone, 220 Singapore, 850 5 Teneriffe, 309 Trinidad, 1,730 Valparaiso, 200 Warre, 120 Berne, 400 Brussels, 3 Cal'ao, 4 C. C. Castle, 140 Curacao, 120 Lausanne, 1 Lisbon, 4 Piraeus, 421 Singapore, 50 Sinoe, 5	Bleaching Powder— Bremen, 4 cks. Boston, 47 Bombay, 20 180 dms. Gothenburg, 2
Paint— Bilbao, 24 dms. Hong Kong, 280 kgs. Iagos, 46 2 cks. Lisbon, 12 cs. Malta, 3 Matanzas, 2 M. Video, 10 Pernambuco, 20 St. Johns, Nfld., 6 80 kgs. San Juan, 1 Singapore, 60 dms. Smyrna, 10 brls. Valparaiso, 40 Vigo, 1 Alexandria, 48 dms. Cape Palmas, 10 6 106 Demerara, 3 cs. Gibraltar, 20 5 cks. Havana, 20 200 kgs. La Libertad, 2 70 New York, 2 61 Sierra Leone, 15 Sulina, 15	Soap— Aden, 200 bxs. 450 bdl. Alexandria, 238 9 cs. Algoa Bay, 2,040 Antwerp, 213 Barbadoes, 600 Batavia, 1,310 47 Benin, 150 Bermuda, 100 Bombay, 3,305 Bussorah, 50 Calcutta, 4 250 Cape Town, 2,315 Colon, 50 Constantinople, 101 Durban, 50 E. London, 1,416 54 Gibraltar, 465 Grand Bassa, 100 " Bassam, 2 " Canary, 822 Hamburg, 20 1 Kurrachee, 1,510 Lagos, 50 Malta, 2 Mossel Bay, 170 New York, 150 30 frks. Old Calabar, 1,300	Savannah, 15 Shanghai, 8,073 Sierra Leone, 220 Singapore, 850 5 Teneriffe, 309 Trinidad, 1,730 Valparaiso, 200 Warre, 120 Berne, 400 Brussels, 3 Cal'ao, 4 C. C. Castle, 140 Curacao, 120 Lausanne, 1 Lisbon, 4 Piraeus, 421 Singapore, 50 Sinoe, 5	Borax— Stettin, 10 cks.
Painters' Colours— Belize, 2 cks. 92 kgs. Boca, 500 tins 5 Bombay, 319 pkgs. 130 6 cs. Bonny, 8 Bussorah, 2 Charlotte Town, 20 Havana, 9 brls. 30 30 dms. Manilla, 6 Matadi, 10 Messina, 67 4 cks. Montreal, 5 Ponce, 5 9 kgs. Pt. Elizabeth, 3 30 Rosario, 5 7 Salaora, 3 Salonica, 3 Santiago, 1 Savannah, 15 cs. Bilbao, 2 bxs. Boston, 100 38 Gothenburg, 130 bgs. Mayaguez, 5 cs. Nassau, 1 1 dm. Pernambuco, 14 cks. 11 Rangoon, 286 Rio de Janeiro, 2 1 Toronto, 1	Soap— Aden, 200 bxs. 450 bdl. Alexandria, 238 9 cs. Algoa Bay, 2,040 Antwerp, 213 Barbadoes, 600 Batavia, 1,310 47 Benin, 150 Bermuda, 100 Bombay, 3,305 Bussorah, 50 Calcutta, 4 250 Cape Town, 2,315 Colon, 50 Constantinople, 101 Durban, 50 E. London, 1,416 54 Gibraltar, 465 Grand Bassa, 100 " Bassam, 2 " Canary, 822 Hamburg, 20 1 Kurrachee, 1,510 Lagos, 50 Malta, 2 Mossel Bay, 170 New York, 150 30 frks. Old Calabar, 1,300	Savannah, 15 Shanghai, 8,073 Sierra Leone, 220 Singapore, 850 5 Teneriffe, 309 Trinidad, 1,730 Valparaiso, 200 Warre, 120 Berne, 400 Brussels, 3 Cal'ao, 4 C. C. Castle, 140 Curacao, 120 Lausanne, 1 Lisbon, 4 Piraeus, 421 Singapore, 50 Sinoe, 5	Caustic Soda— Abo, 1 ck. Bari, 53 dms. Fiume, 4 Libau, 219 Reval, 25 125 cks. Riga, 242 5 Stettin, 69 Wasa, 7
Paraffin Wax— Odessa, 108 cks. Rio de Janeiro, 4 cs. Genoa, 10 New York, 2 Para, 2	Soap— Aden, 200 bxs. 450 bdl. Alexandria, 238 9 cs. Algoa Bay, 2,040 Antwerp, 213 Barbadoes, 600 Batavia, 1,310 47 Benin, 150 Bermuda, 100 Bombay, 3,305 Bussorah, 50 Calcutta, 4 250 Cape Town, 2,315 Colon, 50 Constantinople, 101 Durban, 50 E. London, 1,416 54 Gibraltar, 465 Grand Bassa, 100 " Bassam, 2 " Canary, 822 Hamburg, 20 1 Kurrachee, 1,510 Lagos, 50 Malta, 2 Mossel Bay, 170 New York, 150 30 frks. Old Calabar, 1,300	Savannah, 15 Shanghai, 8,073 Sierra Leone, 220 Singapore, 850 5 Teneriffe, 309 Trinidad, 1,730 Valparaiso, 200 Warre, 120 Berne, 400 Brussels, 3 Cal'ao, 4 C. C. Castle, 140 Curacao, 120 Lausanne, 1 Lisbon, 4 Piraeus, 421 Singapore, 50 Sinoe, 5	Chemicals (otherwise undesignated) Antwerp, 20 cs. 2 cks. Abo, 6 Bombay, 261 Constantinople, 55 Christiania, 4 1 pkg. Danzig, 8 Drontheim, 2 Flushing, 21 Fiume, 40 pks. Gothenburg, 62 5 cs. Harlingen, 20 Hamburg, 5 71 Kurrachee, 600 100 pks. Libau, 310 New York, 50 cs. Odessa, 236 Palermo, 29 Rouen, 1

Riga,	37	30
Rotterdam, 54	4	
Stockholm, 2		
St. Petersburg, 2		
Swedia,	20	
Ulsborg,	2	
Wasa,	1	

Cottonseed Oil—

Antwerp,	349	c.
Bremen,	102	
Flushing,	170	
Fiume,	160	
Gothenburg,	311	
Hamburg,	567	
Norrköping,	27	
Rotterdam,	1,074	
Trieste,	3,200	

Cresote—

Danzig,	100	cks.
Odesa,	468	
Petersburg,	800	brls.

Dyestuffs (otherwise undescribed)

Boston,	3	cs. 30	cks.
Christiania,		30	bls.
Flushing,		1	
Ghent,	1	3	
New York,	5	5	dms.
Reval,	2		
Riga,	3		
Rotterdam,	67		
St. Petersburg,		1	cs.

Linseed Oil—

Bari,	35	c.
Bergen,	204	
Bombay,	281	
Christiansund,	53	
Christiansand,	62	
Christiania,	824	
Drontheim,	102	
Fiume,	152	
Hamburg,	112	
Kurrachee,	40	
Savanger,	21	
Wasa,	42	

Magnesium Sulphate—

Gothenburg,	40	bgs.
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Mineral White—

Gothenburg,	10	bls.
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Ochre—

Hamburg,	13	cks.
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Paint—

Bombay,	1,657	kgs.
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Painters' Colours—

Amsterdam,	10	cks.
Antwerp, 5 cs. 79	1	dm. 3 pkgs.
Abo,	1	2
Bremen,	10	
Bergen,	1	158
Bombay, 134	688	34 pks. 9
Christiansand,		64
Christiania,	1	61 68
Danzig,	2	4
Drontheim,	1	6
Dunkirk,	2	18
Flushing,		10
Ghent,	28	6
Gothenburg, 1	1	1
Hamburg, 1	12	
Jersey,	3	1
Kurrachee, 3	1	4
New York,	10	
Odesa,	330	4
Rezen,	5	
Reval,	14	
Rotterdam,	3	12
Stockholm,		8
St. Petersburg, 68		
Swedia,	10	
Wasa,	1	11

Pitch—

Antwerp,	230 t.	
Catania,		222 cks.
Danzig,	25	
Dunkirk,	70	
Odesa,		300

Salt—

Bergen,	10	cks.
Gothenburg,	6	

Soap—

Christiania,	60	cs.
Jersey,	214	pks.

Tallow—

Bremen,	2	cks.
Bombay,	9	

Tar—

Abo,	100	cks.
Danzig,	11	
Hamburg,	2	
Norrköping,	204	
Odesa,	20	
Reval,	20	
Rotterdam,	25	
Ulsborg,	30	
Wasa,	60	

Turpentine—

Drontheim,	1	ck.
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Varnish—

Amsterdam, 2 cs.	2 cks.	
Antwerp,	2	
Bergen,	5	
Bombay,		45 dms.
Christiania, 1		
Drontheim,	1	
Hamburg,		4 bls.
St. Petersburg,	3 cs.	

GLASGOW.

Week ending June 29th.

Ammonium Sulphate—

Barbadoes,	25	t.	£250
Trinidad,	41	18½	c. 538
Demerara,	252	15	3,221

Asbestos—

Demerara,		£29
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Bleaching Powder—

Calcutta,	1	c. £30
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Borax—

Japan,	1	t. 2¼	c. £30
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Caoutchouc—

New York,		£4,140
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Coal Products—

Alizarine Oil		£77
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Aniline Colours

Lisbon,	½	c. £20
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Cresote

St. Malo,	112	t. £225
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Cresote Oil

Antwerp,	20	t. £100
Christiania,	20	brls. 10

Pitch

Hamburg,	154 cks.	99 brls.	£222
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Tar

Rotterdam,	146	brls. £45
Christiania,	13	t. 26
New York,	60	7
Danzig,	2,204	brls. 720

Coal Products (otherwise undet.)

Christiania,	13 t.		26
New York.	60	7 C.	150

Cottonseed Oil—

Demerara,	210	glns. £22
Rotterdam,	5	brls. 21

Lead Acetate—

Lisbon,	1	t. 7	c. £35
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Linseed Oil—

Alexandria,	3	t. 13¼	c. £96. 175.
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Manganese Oxide—

New York,	10	t. 4	c. £105
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Manure—

Trinidad,	210	t. 6	c. £1,218
Demerara,	36	10¼	366

Paint—

New York,	10 t.	4 c.	£105
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Painters' Colours—

Trinidad,	210 t.	6 c.	£1,218
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Paraffin Wax—

Alexandria,	1	t. 18	c. £45
Hamburg,	11	bgs. 60	cs. 163

Potassium Bichromate—

Japan,	7	t. 11	c. £296
Lisbon,	5	½	196
Christiania,		7	14

Potassium Prussiate—

Japan,	2	t. 6¾	c. £303
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Rosin Oil—

Rotterdam,	15	brls. £30
Amsterdam,	2	4

Soap—

Barbadoes,	3	t. 6¾	c. £68
Lisbon,	2	5	40
New York,			5

Sodium Bichromate—

Lisbon,	14	c. £25
Antwerp,	15	t. 3¼ 487

Sodium Nitrate—

Demerara,	12	t. 16¼	c. £121
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Varnish—

Rotterdam,	6	cks. £9
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White Lead—

Calcutta,	1	t. 5	c. £27
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TYNE.

Week ending June 24th.

Alkali—

Gothenburg,	10	t. 1	c. £10
Amsterdam,	44	11	
Danzig,	1	10	
Rotterdam,	12		

Alum Cake—

Aalborg,	10	t. 4	c. £10
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Alumina Sulphate—

Montreal,	12	t. 2	c. £10
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Ammonium Carbonate—

Montreal,	1	t. £10
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Anthracene—

Rotterdam,	26	t. 13	c. £10
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Antimony—

Montreal,	5	t. £10
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Arsenic—

Gothenburg,	5	t. 12	c. £10
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Barium Chloride—

Montreal,	5	t. 4	c. £10
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Barytes—

Montreal,	5 t.	4 c.
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Blanc Fixe—

Montreal,	2	t. 19	c. £10
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Bleaching Powder—

Genoa,	8	t. 19	c. £10
Bilbao,	39	1	
Antwerp,	20	6	
Gothenburg,	5	6	
Hamburg,	6	11	
Christiania,	34	2	
Amsterdam,	10	7	
Reval,	33	11	
Danzig,	15	16	
Rotterdam,	13	15	
Esbjerg,	2		
Drontheim,	10		
Montreal,	7	11	

Caustic Soda—

Archangel,	14	t. 10	c. £10
Gothenburg,	4	19	
Genoa,	78	16	
Leghorn,	18	14	
Antwerp,	32	19	
Arendal,	2	18	
Bergen,		11	
Bilbao,	10	3	
Copenhagen,	1	9	
Montreal,	23	11	

Colours—

Antwerp,		10	c. £10
Naples,	2	t. 17	

Copperas—

Gothenburg,	5	t. £10
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Litharge—

Gothenburg,	1	t. 8	c. £10
Copenhagen,	17		
Montreal,	8	3	

Magnesia—

Esbjerg,	2
Drontheim,	10

Ochre—

Montreal,	6	t. 11	c. £10
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Paint—

Archangel.	3 t.	16 c.
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Soda—

Gothenburg,	2	t. 2	c. £10
Holbeck,	30	3	
Genoa,	3	6	
Christiania,	5		
Nakskov,	6	14	
Amsterdam,	29		
Rotterdam,	14	18	
Esbjerg,	150	3	
Drontheim,	5		
Montreal,	7	10	

Soda Ash—

Gothenburg,	60	t. 12	c. £10
Archangel,	1	7	
Antwerp,	5	7	
Christiania,	2	14	
Horsens,	2	13	
Amsterdam,	1	6	
Danzig,	20	5	
Rotterdam,	3	18	
Copenhagen,	15	4	

Sodium Sulphate—

Gothenburg,	200	t. 1	c. £10
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Sulphur—

Nakskov,	6	14
Amsterdam.	29	

Superphosphate—

Libau, J.A.,	490	t. 1	c. £10
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Tallow—

Hamburg,	17	c. £10
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Tar—

Archangel,	2	t. 10	c. £10
Hamburg,	1	1	

Varnish—

Antwerp,	4	c. £10
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PRICES CURRENT.

WEDNESDAY, JULY 5th, 1893.

PREPARED BY MESSRS. HIGGINBOTTOM AND CO., 116, PORTLAND STREET, MANCHESTER.

The values stated are F.O.R. at maker's works, or at usual ports of shipment in U.K. The price in different localities may vary.

Acids:—

Acetic, 25% and 40%	per cwt	7/- & 10/6
" Glacial	"	50/-
Arsenic S.G., 2000°	"	0 14 6
Fluoric	per lb.	0 0 3½
Muriatic (Tower Salts), 30° Tw.	per bottle	0 0 10
" (Cylinder), 30° Tw.	"	0 3 0
Nitric 80° Tw.	per lb.	0 0 1¾
Nitrous	"	0 0 1¾
Oxalic	nett	0 0 3
Phosphoric, 1750°	"	0 1 2½
Picric	"	0 1 0
Sulphuric (fuming 50%)	per ton	15 10 0
" (monohydrate)	"	5 10 0
" (Pyrites, 168°)	"	3 0 0
" " 150°	"	1 5 0
" (free from arsenic, 145°)	"	1 6 0
Sulphurous (solution) S.G. 1025	"	3 0 0
Tannic (pure)	per lb.	0 1 2
Tartaric	"	0 0 11½
Arsenic, white powdered	per ton	13 12 6
Alum (loose lump)	"	5 2 6
Alumina Sulphate (pure)	"	5 0 0
Aluminoferic	"	2 10 0
Aluminium	per lb.	0 4 0
Ammonia, Anhydrous	"	0 1 2
" 880=28°	per lb.	0 0 2½
" =24°	"	0 0 2
" Carbonate	nett	0 0 3½
" Muriate	per ton	21 10 0
" (sal-ammoniac) 1st & 2nd	per cwt.	37/- & 35/-
" Nitrate	per ton	42 0 0
" Phosphate	per lb.	0 0 10½
" Sulphate (grey) London	per ton	13 2 6
" (grey) Hull	"	13 1 3
Aniline Oil (pure)	per lb.	0 0 6½
Aniline Salt	"	0 0 5½
Antimony	per ton	45 10 0
" (tartar emetic)	per lb.	0 1 0
" (golden sulphide)	"	0 0 10
Barium Chloride	per ton	7 10 0
" Carbonate (native)	"	3 10 0
" Sulphate (native levigated)	"	45/- to 75/-
Bleaching Powder, 35%	nett	8 0 0
" Liquor, 7%	"	3 10 0
Bisulphide of Carbon	"	11 15 0
Chromium Acetate (crystal)	per lb.	0 0 6
Calcium Chloride	per ton	2 5 0
China Clay (at Runcorn) in bulk	"	17/6 to 35/-

Coal Tar Products and Dyes:—

Alizarine (artificial) 20%	per lb.	0 0 8
Magenta	"	0 3 9
Anthracene, 30% A, f.o.b. London	per unit per cwt.	0 1 2
Benzol, 90% nominal	per gallon	0 1 5
" 50/90	"	0 1 4
Carbolic Acid (crystallised 40°)	per lb.	0 0 7¼
" (crude 60°)	per gallon	0 1 10
Creosote (ordinary)	"	0 0 1
" (filtered for Lucigen light)	"	0 0 1¼
Crude Naphtha 30% @ 120° C.	"	0 0 7½
Grease Oils, 22° Tw.	per ton	2 5 0
Pitch, f.o.b. Liverpool or Garston	"	1 5 0
Solvent Naphtha, 90% at 160°	per gallon	0 0 11
" Lucigen" and "Wells" Oils	"	0 0 1¼
Copper	per ton	43 8 9
" Sulphate	"	16 2 6
" Oxide (copper scales)	"	42 0 0
Glycerine (crude)	"	13 0 0
" (distilled S.G. 1250°)	"	43 0 0
Iodine	nett, per oz.	0 0 9
Iron Sulphate (copperas)	per ton	1 12 6
" Sulphate (antimony slag)	"	2 0 0
Lead (sheet) for cash	"	11 5 0
" Litharge Flake (ex ship)	"	13 0 0
" Acetate (white)	"	25 15 0
" " brown "	"	17 10 0
" Carbonate (white lead) pure	"	20 0 0
" Nitrate	"	20 0 0

Lime, Acetate (brown)	per ton	5 17 6
" (grey)	"	10 15 0
Magnesium (ribbon and wire)	per oz.	0 2 3
" Chloride (ex ship)	per ton	2 7 6
" Carbonate	per cwt.	1 17 6
" Hydrate	per ton	17 0 0
" Sulphate (Epsom Salts)	per ton	2 19 0
Manganese, Sulphate	"	17 15 0
" Borate	per cwt.	2 12 6
" Ore, 70%	per ton	4 5 0
Methylated Spirit, 61° O.P.	per gallon	0 2 0
Naphtha (Wood), Solvent	"	0 3 6
" Miscible, 60° O.P.	"	0 4 0
Oils:—		
Cotton-seed	per ton	23 0 0
Linseed	"	22 10 0
Lubricating, Scotch, 890°—895°	"	7 5 0
Petroleum, Russian	per gallon	0 0 4
" American	"	0 0 5½
Potassium (metal)	per oz.	0 3 7
" Bichromate	per lb.	0 0 4½
" Carbonate, 90% (ex ship)	per ton	16 15 0
" Chlorate	per lb.	0 0 8¼
" Cyanide, 98%	"	0 2 0
" Hydrate (Caustic Potash) 80/85%	per ton	21 10 0
" " (Caustic Potash) 75/80%	"	20 10 0
" " (Caustic Potash) 70/75%	"	20 0 0
" Nitrate (refined)	per cwt.	1 2 6
" Permanganate	per cwt.	3 5 0
" Prussiate Yellow	per lb.	0 0 9½
" Sulphate, 90% (ex ship)	per ton	9 15 0
" Muriate, 80% (do.)	"	8 0 0
Silver (metal)	per oz.	0 2 10½
" Nitrate	"	0 2 10
Sodium (metal)	per lb.	0 3 4
" Carb. (refined Soda-ash) 48%	per ton	6 0 0
" " (Caustic Soda-ash) 48%	"	4 17 6
" " (Carb. Soda-ash) 48%	"	4 15 0
" " (Carb. Soda-ash) 58%	"	5 0 0
" " (Soda Crystals)	"	2 17 6
" Acetate (ex-ship)	"	16 10 0
" Arseniate, 45%	"	12 0 0
" Chlorate	per lb.	0 0 9
" Borate (Borax)	net, per ton	29 0 0
" Bichromate	per lb.	0 0 3¼
" Hydrate (77% Caustic Soda) (f.o.b.) net pr. ton	to ton lots	11 0 0
" " (74% Caustic Soda)	"	10 10 0
" " (70% Caustic Soda)	"	9 10 0
" " (60% Caustic Soda)	"	8 10 0
" " (60% Caustic Soda, cream) (f.o.b.)	"	8 5 0
" Bicarbonate	"	6 10 0
" Hyposulphite	"	6 10 0
" Manganate, 30%	"	16 0 0
" Nitrate (95%) ex-ship Liverpool	per cwt.	0 10 0
" Nitrite, 98%	per ton	27 10 0
" Phosphate	"	15 0 0
" Prussiate	per lb.	0 0 7¼
" Silicate (glass)	per ton	5 7 6
" " (liquid, 100° Tw.)	"	4 5 0
" Stannate, 40%	per cwt.	3 0 0
" Sulphate (Salt-cake)	per ton	1 4 0
" " (Glauber's Salts)	"	1 10 0
" Sulphide	"	8 10 0
" Sulphite	"	6 5 0
Strontium Hydrate, 100%	"	8 10 0
Sulphocyanide Ammonium, 95%	per lb.	0 0 7¼
" Barium, 95%	"	0 0 5
" Potassium	"	0 0 7½
Sulphur (Flowers)	per ton	8 0 0
" (Roll Brimstone)	"	6 10 0
" Brimstone: Best Quality	"	4 2 6
Superphosphate of Lime (26%)	"	2 7 6
Tallow	"	27 10 0
Tin (English Ingots)	"	88 0 0
" Crystals	per lb.	0 0 6¼
Zinc (Spelter)	per ton	17 15 0
" Chloride (solution, 96° Tw.)	"	5 15 0

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EXPERTS' FIGURES.

WE take it for granted that the expert's duty, when
called upon to do so, is to enlighten the inexperienced
upon matters with which he has special knowledge, and in
processes to which he has devoted a considerable amount of
personal attention. Unless a scientist has had the details of
commercial operations under his own eye, and has worked at
the subject with his own fingers, he has no right to be con-
sidered an expert in such operations, and it is because the
contrary practice is gaining ground that we feel constrained
to pen these few remarks.

A consideration of the foregoing premises will show at
once to the intelligent eye how carefully the expert should
weigh and sift the evidence and work of his subordinates
before he issues the work as his own; and if so be that an
error is made it should not be a valid excuse that it was an
assistant who made the error. There is a strongly growing
practice of professors and others to accept analytical
work and to relegate the performance of it to assistants,
or even pupils, the senders of the samples being under
the impression that they are paying for the professor's
personal work. The consequences of the foregoing system
are sometimes disastrous, and should at any time the public
require protection from the effects of such a vicious system,
we shall be ready with evidence to prove how extensively the
system has eaten like a canker into the morals of the
chemical profession. We hope the day will come when
every chemical expert who enters the witness box will be
asked the question: Did you do these analyses yourself?
and, further, he should be obliged to produce his note books,
so that his opponents-at-law might be able to judge whether
or no every operation has been properly performed.

We are quite aware how difficult it would be for ordinary
counsel to put these questions to the "bigwigs," their *status*,
as a rule, being sufficient to inspire a stuff gownsmen with
awe; but we hold that these are the very men who should be
closely interrogated, seeing that so much of their work is
done by deputy. How can a man who spends most of his
days and nights in political or other public work be expected
to come down to the level of laboratory determinations?

The foregoing considerations should have some weight
with those public characters who are not experts in any
sense of the word. If they are not experts themselves, they
generally have the selection of them, and often a grave
injustice is done by the enforcement of penalties in support
of which the expert's advice is needed. Unfortunately, how-
ever, the known intimate knowledge of some man, in
connection with his subject, serves only as a bar to his
appointment, and more often than not the appointment is
given to the man who is the least qualified, simply because
he has "Friends at Court."

The Mersey and Irwell Joint Committee have been
prompted by feelings of a higher order than some of those to
which expression has been given above, but *quandoque bonus*

dormitat *Homerus*, and should the committee exercise a little supervision over the methods by which their analyses are conducted, we believe the results would be of use to them in the prevention of the pollution of the Irwell and Mersey.

We have before us a copy of two analyses submitted to the Committee, or Sub-Committee, of the effluent from the Salford Sewage Works, taken on June 21st of this year. It would not be fair to the Salford Corporation to publish the results of these analyses, seeing that the effluent was the product of the trials of the Standard Sewage Co.'s process then undergoing experimentation, and, further, it would not be fair to the Standard Sewage Co., as the published results do not allow us to form any opinion of its character. This is tantamount to saying that the analysis is not worth the paper it is written upon, to which we answer—yea! Why the albuminoid ammonia was not determined, but in its place, the "oxygen absorbed from an acid solution of permanganate of potash" is more than we can comprehend.

We have said that the results given of the Salford effluent do not allow us to form any opinion of its character—we were of the opinion that every chemist knew, that, on adding a ferric solution to sewage, a portion was reduced to the ferrous state, and remained to a large extent dissolved in the sewage, to turn black by the formation of iron sulphide when circumstances favoured the decomposition of the albuminous matter. The analyses given do not differentiate the organic from the inorganic matter, or the putrescible matter from the iron added, and, therefore, the figures are quite worthless, and even misleading. We will say no more.

SOCIETY OF CHEMICAL INDUSTRY.

ANNUAL GENERAL MEETING.

THE annual general meeting of this society began in accordance with our previous announcement, at Liverpool, on Wednesday last. In view of the approaching completion of the Ship Canal it was in many ways a happy idea to hold the meeting this year at Liverpool. Owing to various reasons, it was necessary to materially modify the programme at first prepared, but, despite this fact, a by no means uninteresting list of works to be visited had been provided, which was of such range as to meet, we should think, the tastes of all.

First Day, Wednesday, 12th.—The Council meeting was timed for 2-30, to be followed by the general meeting at 3 p.m. To suit the convenience of members who wished to come down from London on Wednesday morning, arrangements were made to meet the Scotch express at Crewe, so that those leaving London at 10 a.m. could be in Liverpool by a few minutes past 2 p.m. The Victoria Buildings, University College, having been made the head-quarters, it was there that the retiring president (Sir John Evans) opened the general meeting. The usual business including the statements of the Secretary and Hon Treasurer regarding the position of the society was taken, followed by the election of officers for the ensuing year, which resulted as follows:—Mr. E. C. C. Stanford, president; vice-presidents, Sir F. A. Abel, Bart., Sir John Evans, K.C.B., Sir John Turney, Professor Reynolds, Professor T. E. Thorpe, Dr. F. Hurter, Dr. W. H. Perkin, Messrs. William Crowder, John Spiller, H. Brunner, H. T. Brown, and E. K. Muspratt.

The president then proceeded to deliver his address:—

While pointing out that it was only by co-operation the British industry could prosper, as almost every industry overlapped another, and nowadays chemistry played an important part in so many branches, the President briefly reviewed the relations between inorganic and organic chemistry, indicating the rapid and almost revolutionary advances made by organic chemistry, though the changes in inorganic chemistry had not been extreme. He further called attention to the rapid advances made in the study of *spectrum analysis*, making special mention of the work of Norman Lockyer and Mr. Huggins. Regarding *electricity*, it was hard to say whether that science did not owe as much to chemistry as chemistry did to it. While chemistry was called upon to assist in the production of the electric light, electricity had also placed greater intensities of heat at the command of the chemist than could be derived from ordinary sources.

The study of heat irrespective of electricity, however, had largely reacted on chemistry.

In the other direction—the absence of heat—Professor Dewar had during the present year made most important advances. Although air had previously been liquified, he had now been able, by means of intense cold alone, to reduce atmospheric air to the liquid condition. His further results, by a combination of enormous pressure and extreme cold, were well known, and now that oxygen and nitrogen had yielded themselves to the advances of science, and had been obtained in quantities in a liquid state, it was hard to say that hydrogen was destined always to remain intractable.

These experiments, in conjunction with others carried on in France, made it seem possible that what might be termed "glacial chemistry" would eventually enlarge their views as to the various properties of matter.

Since the introduction of *artificial light* much had been done. At the present time gas had to compete with electricity as an illuminant, while in many cases it had been superseded by mineral oils, which were now so abundant and cheap, and of which in that society the flashing point might be said to be almost a burning question. If, however, gas was losing ground as an illuminant, it seemed to be gaining it as a source of power, and there were prospects of a considerable increase in the use for this purpose of hydrogen and its compounds, containing far less carbon than ordinary coal gas.

Coming to *Metallurgy*, the President referred principally to the improvements in the cheap production of aluminium (and in connection therewith the manufacture of metallic sodium), and the manufacture of rubies, which, though unable to rank as gems, were suitable for "jewelling" watches.

Turning to organic chemistry the speaker compared the situation in 1840 with that of to-day, and though such vast changes had been made pointed out that it was some satisfaction to know that the woad with which the ancient Britons stained their bodies was still cultivated among them for the purpose of dyeing wools, even though it had acquired the name of *Isatis tinctoria* and the colouring extract was now classed as an indigotin. Among inorganic colours he might mention ultramarine, which, instead of being patiently produced by the careful treatment of *lapis lazuli* and sold at many shillings an ounce, was now manufactured by the ton and quoted by the hundredweight. Would that the artificial colour was as fine and permanent as the natural. Not only colouring matters, but our flavours and scents had been synthesised, though art, if superseding nature for a time, must eventually acknowledge her inferiority, even in pear-drops.

Sugar next came in for consideration, and though refraining from speculating on the future of "saccharine," the development of the sugar beet industry was emphasised and its ultimate bearing indicated. The study of micro-organisms and the process of fermentation had, by establishing the close relationship of chemistry and biology, rendered great assistance to the medical profession, and the brewing industry.

Now that so many diseases had been traced to pathogenic organisms which were constantly present in water contaminated by sewage, the the questions of the vitality of these organisms and their germs had been rightly regarded as one of great public importance, and the Royal Society, in conjunction with the London County Council, had instituted an investigation into it, which was being diligently prosecuted both from the botanical and chemical points of view. The remarkable power of light, whether that of the sun or electric, in sterilising the germs of some micro-organisms, already to some extent previously known, had been conclusively demonstrated by Professor Marshall Ward. Much had been done of late years by chemists towards the *purification of sewage*, and the results obtained had been in many instances satisfactory. They would, no doubt, have been even more so had not the imperative demands of economy limited the cost. He would not attempt to discuss the important question of the disposal of sewage, but to many it would appear as somewhat of a disgrace to their powers of applying chemical knowledge that such vast accumulations of what were originally highly-fertilising substances should be not only absolutely wasted, but converted into a perpetual nuisance. It was true that within the last fifty years they had imported enormous quantities of guano, phosphates, and nitrates, but of these there must eventually become a scarcity, if not an end. In the meantime, might not chemists do something to reduce the waste of fertilising agents that was now taking place amongst them? Agricultural colleges had been founded—*agricultural chemistry* was a recognised branch of science; but with increase of knowledge had come increase of foreign competition, fostered by improved means of transport and communication, and it was at the present time a doubtful point whether many soils, even if rent free could be cultivated in this country for cereals, except at a loss.

In conclusion he said they were assembled on the borders of two of the greatest centres of the chemical industry, which had received them with open arms, and provided an "open sesame" enabling them to visit many interesting works, and he was sure they would not forget that they were all members of one body, and all mutually interested in the advance of chemical knowledge, and especially of chemical industry.

te of thanks was proposed by Professor Reynolds and seconded Campbell Brown.

invitation of the new President to hold the next meeting at rgh was unanimously accepted.

members were now at liberty to inspect the Laboratories of the at their leisure, an occupation which, in conjunction with company and refreshments in the form of tea, helped to ably fill up the interval between the termination of the general and the time when it was necessary for the members to pre- themselves for the Reception and Soirée, which was held in the Art Gallery at 8 p.m. Space will not allow us to deal with m of the programme in detail, but it is sufficient to say that, le as previous receptions have been this one was no exception

ule.
4 Day, 13th July.—In accordance with what seems to be the custom of the Society, business having been wisely taken first, re business-like or technical portion of the programme was taken on the morning of the second day. Four excursions ranged for the morning, the most important and interesting, as the majority of our readers are concerned, being the visit to the f

THE UNITED ALKALI CO., WIDNES.

rks, which were visited, were those formerly known as Sullivan's ington's, which have since been merged into the United Alkali l. It is needless to say that a visit to Sullivan's works would be interest to those interested in the chemical trade, this works ne of the best constructed and conducted of its kind; and one a the benefit to be derived from the judicious acceptance of the ce which Applied Chemistry proffers to the chemical trade, is ly *en évidence*.

ing by train at Tannhouse Lane, the members proceeded to the works, which are in close proximity to the station. There y interesting operations to be seen in progress at this works. ion to the usual process, such as the manufacture of vitriol, soda, soda ash, and soda crystals, there are also the following en :—the production of Saltecake, by Hargreaves' process; the tion of monohydrated Sulphuric Acid, by G. Lunge's method; ance Sulphur recovery process, which is a pretty piece of us to see at work; while lastly, though by no means of least nce as regards interest, two rather rare articles are likewise tured, namely, Chromic Acid, which is now extensively used ic cells; and Strontium Hydrate, so largely used in the sugar lustry.

members having been piloted through these works, next proceeded Vidnes Town Hall, where they were entertained by the Mayor (message) at luncheon.

gentlemen who preferred to enjoy the saponaceous odours of night, in preference to the more pungent and frouzy emanations es and its neighbourhood, had an opportunity of visiting the rks of

MESSRS. LEVER BROS.,

e enabled to get some idea of the lines upon which that soap, resumably causes clothes to so rival the effulgence of the sun as unt the title of Sunlight, is prepared for the public. The other ursions were to the Shipbuilding yard of Messrs. Laird Bros., Tobacco factory of Messrs. Cope Bros., both of which pre- instructive and interesting items to those whose preference n this direction.

e afternoon the entertainment was of a rather lighter order, a pleasant off-set against the "serious" business fixed for the , namely, the Annual Dinner. The members had, therefore, to between a visit to the Lancashire Watch Co., at Prescott, and ks of the British Insulated Wire Co., at the same place, or the hter occupation of viewing the Electrical Overhead Railway, n Warehouses at Alexandra Dock, or an Atlantic Liner. Apart e generating stations for the Overhead Railway, there is nothing ry technical nature to be noticed in either of the three last ed items. A word or two, however, about the watch factory t be out of place, as the works are typical in some ways, ly as an instance of how successfully machinery can supplant labour to a large extent, even in the delicate operations of aking.

e present time this Company makes three description of watches, e English lever type. There is, first, the key-winding, full-see movement; second, the full-plate, going-barrel movement, ey-winding or keyless; and third, $\frac{3}{4}$ -plate, going-barrel move- ther key-winding or keyless. These standard types are made ent sizes and different qualities, but all, in general principle of are the same, the price being regulated by the amount of finish ber of jewels, and, of course, the quality of the cases. The y has carefully abstained from making radical departures in the f the watch; in this respect alterations have not been neces- the management has not seen its way to improve, to any

marked extent, on the best design of watch now in use. There are, indeed, some alterations in detail, but the law of the survival of the fittest has stood good in this respect, and the modern English lever watch is a selection, or survival, from a long and varied experience. It will, therefore, be seen that the great interest from a mechanical point of view of the Company's works does not lie in the watches themselves, but in the method of manufacture. It may be said in passing that the watches now made by the company are founded on the type of watch manufactured by the late firm of Messrs. Wycherley, Hewitt, and Co., the parent firm of the present company; the latter being an amalgamation of a number of firms established in Prescott on the old lines. Machinery has been used in the manufacture of parts of watches in England for some years past; but the complete factory system as applied to the manufacture of the entire watch has never been carried to its fullest extent, as it has been in America. The works of this company, however, very clearly show that the same system can be successfully operated here, as it is being done in this Lancashire factory.

As a conclusion to what must have been a tiring though interesting day to those who did their best to take advantage of the programme, at 7.30 p.m. the annual dinner was held at the Adelphi Hotel, where comfort for the inner man was amply provided to compensate for the labours of the day.

Third Day, July 14th.—This, the last day, was devoted to an excursion to Northwich, *via* that portion of the Ship Canal which is open for traffic. Though much of interest was to be seen, it almost seems a pity that better advantage was not taken of what was an exceptionally convenient opportunity of seeing the ins and outs of the construction of this gigantic scheme, the beauty of which cannot be grasped save in a feeble manner by merely witnessing the work when finished or very nearly so. The day, which, as is usual for the last one of the meeting, was an easy day, and was brought to an end in pretty much the same style with a smoking concert, which began at nine o'clock p.m., being a go-as-you-please arrangement, and therefore suited to the taste of all; there being time for conversation, relieved by good talent, enabling a successful meeting to terminate as it is desirable it should, with good fellowship and harmony.

SOLID AMMONIA.

THIS is the name inscribed upon a packet of "washing powder" sent to us as a new article by Mr. William Brothers, Rawtenstall. An analysis of the powder reveals the fact that it consists of absolutely pure bicarbonate of ammonia. We have made an analysis of it in our laboratory and find it to contain over 57 per cent. of carbonic acid, and nearly 22 per cent. of ammonia, the remainder being water.

Bicarbonate of ammonia is an opalescent or semi-transparent solid, having but little odour of ammonia even when ground to a fine powder, and possesses the property of giving off a large proportion of its carbonic acid when stirred up with boiling water.

In the directions for use, which are printed on the packet, a pint of *boiling water* is to be poured on to a tablespoonful of the powder, and the resulting liquor is diluted as required for washing fabrics, cleaning carpets, sponges, wood, paint, cleaning, silver or plated articles, all of which it does in a remarkably efficient manner. Flannels and woollens washed in the solution do not shrink, and such as have shrunk in previous washings are restored to their original soft and open nature.

There is another use to which this powder may be put: the clothes of the household may be washed and the bread may be baked out of the selfsame packet. Bicarbonate of ammonia is an exceedingly good bread raiser, and would, no doubt, have been used largely ere this for domestic purposes had it been obtainable in quantity at a reasonable price.

Bicarbonate of ammonia, such as is mentioned herein, either in lump or powder, must not be confounded with the ordinary and commercial article—the sesquicarbonate—which it scarcely resembles in any way, in fact we are strongly of opinion that this new article will, sooner or later, displace the sesquicarbonate to a great extent.

Still another use may be found for this article. Window gardeners and amateur horticulturists are often at a loss where to procure small quantities of nitrogenous manures for asters, poppies, chrysanthemums, etc., and it is now to their hand in a threepenny packet of Brothers' solid ammonia powder.

CHANGE OF ADDRESS.—We are informed that Messrs. P. D. Carr and Co., Chemical and Oil Brokers, of Liverpool, have removed from their old address to 68, The Albany, Old Hall Street, in that city.

THE VINEGAR QUESTION.—The appeal from the decision of Messrs. Fisher and Rylands, was heard at the Birmingham Quarter Sessions recently. Evidence was given at length, and the Recorder summed up in a comprehensive manner, finally dismissing the appeal, with costs, against the appellant.

THE PRODUCTION OF CHLORINE FROM MANGANESE DIOXIDE AND NITRIC ACID.

BY G. LUNGE AND C. PRET.

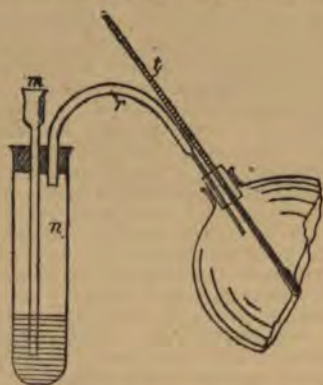
(Continued from p. 370, vol. xii.)

THE next question was, how far can the nitric acid used be recovered?

In order to examine this problem the residual solutions obtained from the evolution of chlorine in the previous experiments were washed out into a tubulated retort, which was fastened in an air-bath, the neck being inclined upwards. A glass tube was inserted through the tubulation which just filled up the opening, but was not air-tight, and through this a thermometer was passed, which reached to about the middle of the retort, when the retort-cooled air could be drawn in through the space between this and the glass tube. This arrangement was later on exchanged for the more perfect one to be described below. The retort was connected first with an empty flask standing in cold water, and then with two Mitscherlich's four bulbed U tubes, four wash bottles (all six apparatus being filled with water), and finally a flask containing litmus solution, which was also connected with the vacuum pump.

The solution in the retort was now gradually heated and evaporated, the residue being finally brought to 250°. The first heating lasted two or three hours, after which it was maintained at 250° for one to two hours, a current of air being passed through the apparatus during the whole period.

In this way experiments Nos. 15-17 of Table II. were carried out. These show that after distilling off the water and drying the residue, the decomposition of the manganese nitrate suddenly commenced, as was observed by Schloesing, between 180° and 190°. At this point it was impossible to prevent a certain amount of loss through the aperture for the thermometer, in spite of the passage of a current of air, the evolution of nitrous gases being at first very vigorous. This led us to make the following alteration. The tubulure of the retort was closed by an indiarubber stopper through one hole of which the thermometer passed, whilst through the other a glass tube was put, the other end of which passed through the cork of a test tube which was also provided with a small funnel tube dipping into the liquid at the bottom of the



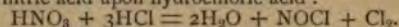
tube. The test tube was supplied with normal caustic soda solution, which was afterwards examined and allowed for in the calculation. The air, therefore, had to pass through this liquid, and when the sudden decomposition commenced and the upper part of the test tube was filled with brown fumes, these were completely retained by the alkaline solution. The efficiency of the arrangement is shown in the results obtained in Nos. 19 and the following ones. Table II. gives the results of the experiments.

TABLE II.

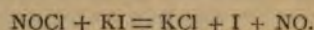
Experiment.	With the residue from expt.	HNO ₃ used, grams.	HNO ₃ regenerated, grams.	Regenerated Acid, o/o on the original amount.
15	4	3.975	2.888	72.3
16	5	4.620	3.483	75.4
17	6	4.62	3.873	83.7
18	8	4.62	4.004	86.6
19	9	4.62	3.898	84.3
20	10	4.62	4.163	90.0
21	11	4.62	4.095	88.4

We have therefore in this way recovered 84 to 90% of the acid used, the first two experiments being left out of the calculation for the reason already mentioned. The question next arises, what has become of the remainder of the acid? An analysis of the residue left in the evolution flask in Experiment 7 showed that it contained only 90.3% of

the nitric acid originally put into it, so that, contrary to the statement of Schloesing, 9.7% had been lost during the evolution of the chlorine. Obviously nitrosyl chloride (NOCl) is produced, which, according to Goldschmidt (Ann. Chem. 205, 372), is formed along with chlorine by the action of nitric acid upon hydrochloric acid:



The next point to settle was therefore the behaviour of this substance, nitrosyl chloride, towards the absorbent which we were using—potassium iodide. Pure nitrosyl chloride was prepared by the distillation of chamber crystals with an equal weight of sodium chloride on the water bath, the liquid being received in a Liebig's bulbs cooled by a freezing mixture. A small portion was then distilled out of this, by raising it out of the freezing mixture, into a solution of potassium iodide contained in a flask from which the air had been displaced by carbonic acid gas. The gas evolved in this flask was passed into an azotometer, the whole of the gas in the potassium iodide apparatus being finally swept out by a current of carbonic acid gas. The gas thus collected was then examined in a Bunte's burette filled with a solution of ferrous sulphate, and was found to be completely soluble in this reagent, so that it must have been pure nitric oxide (NO). The titration of the iodine liberated in the flask would then decide whether the reaction which had taken place was that which might be expected to occur:



In two experiments we found:—

Separated iodine	0.4496	..	0.4881
Nitric oxide calculated from this	0.1062	..	0.1152
Nitric oxide found	0.0970	..	0.1059

Since in the method adopted a little of the nitric oxide might be lost in driving out with carbonic acid, or oxidised by the air contained in the latter, and since the numbers found only differ slightly from those calculated from the iodine liberated, we may conclude that the above reaction really occurs. It hence follows that in Schloesing's process considerable quantities of nitric acid are converted into nitrosyl chloride, which on contact with potassium iodide yields nitric oxide and iodine. The chlorine of this substance is therefore reckoned as free chlorine, and consequently the results obtained in experiments 1 to 14 are too high. A fresh set of experiments was therefore necessary in which, in addition to free chlorine, other gases were also tested for. The apparatus was accordingly arranged so that the air of the absorbing flasks could be displaced by carbonic acid, and the gases evolved be passed after treatment with the potassium iodide solution into an azotometer filled with caustic soda. Since the former experiments had shown that the evolution of chlorine only became complete at 135°, the apparatus was heated very gradually up to this temperature. In an experiment made with the same quantities as before, we found 1.460 gm. of free chlorine instead of 1.490, or 98% of the theory. In the residue after heating to 135° there were present, according to a determination with the nitrometer, 4.258 gm. of real nitric acid out of 4.620 added, so that a loss of 0.362 gm. or 7.8%, corresponding to 128.4 c.c. of nitric oxide had taken place. The analysis of the gas obtained by means of ferrous sulphate solution, however, showed that only a few c.c. of this gas had been absorbed, and the remainder, therefore, could not be nitric oxide. As this great deviation from the number which would have been obtained had the loss of nitric acid been really due to the formation of nitrosyl chloride, might have been caused by some experimental imperfection, a second determination was carried out with great care, but again instead of 123.5 and 126.1 c.c. only 19 and 12 c.c. of NO were obtained. The unexplained loss of nitrogen compounds therefore amounted to 7.5 and 7.7%.

Only a small portion of the evolved chlorine, at the most 1%, can be attributed to nitrosyl chloride, and only a correspondingly small proportion of the loss of nitrogen compounds can be accounted for in the same way. We have therefore found that of a total loss of nitrogen compounds in the process of 10 to 16%, 7.5 to 7.7% is lost during the evolution of the chlorine, but we have not been able to determine in what form.

The remainder—2.5 to 2.8%—is lost in the second stage of the process, the heating of the manganese nitrate and regeneration of the nitric acid from the lower oxides.

The researches to be next described with pure nitrogen peroxide show that this arises, at all events to some extent, from the difficulty of converting NO into HNO₃, but in any case, since the results obtained on the large scale will probably not be very much more satisfactory than ours, those employing Schloesing's method must allow for a loss of at least 10% and probably as much as 16% of the nitric acid.

A portion of this loss occurs during the evolution of the chlorine, in spite of Schloesing's express statement to the contrary, and it will probably be found impossible to recover this part on the large scale. On the other hand it is merely a question of perfection of apparatus, how far the lower oxides of nitrogen formed by the heating of the manganese nitrate can be regenerated to nitric acid. The fact that we

have experienced varying losses (2.5 to 8%) in our small scale researches is not to be wondered at; the temperature under these conditions cannot be so well regulated, and varying amounts of nitric oxide, which is so difficult to reconvert into nitric acid, are formed.

(To be continued.)

SPECIFIC GRAVITY OF BLEACHING POWDER SOLUTIONS.

By G. LUNGE AND F. BACHOFEN.

A TABLE of the specific gravities of bleaching powder solutions has not, so far as we are aware, hitherto been published. Such a table founded upon reliable work, would no doubt be welcome to many and hence we have undertaken the work, which is thus described, in the *Zeit. für Angew. Chem.*—

A concentrated solution was prepared in the usual way from good fresh bleaching powder, and carefully guarded from air and light. The work was carried out as rapidly as possible, in order to prevent any change of the solution during its progress; that we had succeeded in this was shown by the fact that determinations of the available chlorine made at the commencement and the conclusion of the experiments gave practically identical results. The strong solution was then examined for all important constituents in the following way. The available chlorine was determined by the method of Penot, and controlled by the volumetric process with hydrogen peroxide first described by us (*Chem. Ind.* 1885, 168; *Berichte*, 1886, 868). As in the previous determinations, the latter method gave a slightly higher number than the other, and this has been proved to be invariably the result, the slight excess of oxygen being probably due to the reaction of the peroxide with the small amount of free lime contained in the solution. The number obtained by Penot's method was therefore accepted.

In the solution just reduced by arsenious acid, the total chloride was next determined after acidifying with dilute nitric acid, and by subtraction with the available chlorine, the original calcium chloride found. In another sample the available chlorine and that of the chlorate present were determined together by the well-known method of boiling with ferrous sulphate, and titrating back with permanganate; the chlorine as chlorate is then found by subtracting the available chlorine from this total. Finally the lime was determined and the composition of the solution found to be as follows:

	g. per litre.
Available chlorine	72.17
Chlorine as chloride	6.74
Chlorine as chlorate	0.13
Lime	65.53
or, calculated as the salts actually present :	
Ca(OCl) ₂	129.09
CaCl ₂	10.54
Ca(ClO ₃) ₂	0.38
Ca(OH) ₂	4.21

This analysis does not represent an ideal bleaching powder, such as can only be obtained from a fresh preparation in the works, as an exceptionally good product, but still is typical of a good commercial article, and hence the table determined with it should be of practical use. That it will not, however, apply to an old sample containing a large excess of calcium chloride or chlorate is, of course, obvious; such a specimen will, moreover, never be purposely made use of by an intelligent manufacturer.

The specific gravity was determined by means of an officially certified normal hydrometer at a temperature of exactly 15°. The hydrometers, a series of 21 reading from 0.76 to 2.0, permitted a direct reading of 0.0005 and, according to a control determination carried out in this laboratory, are quite accurate. The solutions were first roughly made up, cooled a little below 15°, and then allowed to stand at the temperature of the room until they reached exactly 15°. They were then generally brought by the addition of water to exact intervals of specific gravity, and the latter then accurately observed. The numbers given in the table are therefore those actually determined, and (except those marked with a star) have not been found by interpolation. Two samples were then taken from each solution by means of an accurately calibrated pipette and the available chlorine determined by means of a solution of arsenious acid. The results of the single titrations never varied more than 0.05 cc. of arsenious acid solution from each other, and were generally closer than this. The accuracy of the table therefore amounts to 0.05 in the higher numbers, and in the lower to 0.02 grams per litre.

The results of the separate experiments were mapped out on curve paper and are situated on a slightly convex line, and from which only very few of the single experiments deviate, and these only very slightly. In the table, column *b* contains the actual results of the determinations,

whilst column *c* contains the numbers corresponding to the smoothed curve. We consider the latter to be the more accurate, but give the experimental numbers for the sake of those who wish to look for discontinuities according to Pickering's method. A reproduction of the curve itself on the scale necessary for its inclusion on a single page, would, on account of the smallness of the deviations, not serve any useful end, and has therefore been omitted. The perfect regularity of the curve in the lower grades of strength renders the interpolation of readings falling between those given always possible.

TABLE OF SPECIFIC GRAVITIES.

Specific Gravity at 15°C.	Available chlorine in grams per litre.		Specific Gravity at 15°C.	Available chlorine in grams per litre.	
	Observed.	Corrected.		Observed.	Corrected.
(a)	(b)	(c)	(a)	(b)	(c)
1.1155	71.79	71.79	1.0600	35.81	35.81
*1.1150	71.50	71.50	1.0550	32.68	32.68
1.1105	68.66	68.40	1.0500	29.41	29.60
*1.1100	68.00	68.00	1.0450	26.62	26.62
1.1060	65.33	65.33	1.0400	23.75	23.75
*1.1050	64.50	64.50	1.0350	20.44	20.44
1.1000	61.17	61.50	1.0300	17.36	17.36
1.0950	58.33	58.40	1.0250	14.47	14.47
1.0900	55.18	55.18	1.0200	11.41	11.41
1.0850	52.27	52.27	1.0150	8.48	8.48
1.0800	48.96	49.96	1.0100	5.58	5.58
1.0750	45.70	45.70	1.0050	2.71	2.71
1.0700	42.31	42.31	1.0025	1.40	1.40
1.0650	38.71	39.10	1.0000	Trace	Trace

NEW VALUATION METHOD FOR RAW SUGAR.

The usual method of determining the value of raw sugar—subtracting five times the ash from the polarisation—has proved to be less satisfactory during the last few years, since it favours the tendency to reduce the amount of ash in any manner as much as possible, without having any regard to the organic impurities present. Since these organic substances also form molasses, without their action being taken into account in the commercial mode of determining the value of the sugar, it follows, says the *Chemiker Zeitung*, that the number obtained as above becomes less and less a true representation of the value of the sugar, as these substances increase in relation to the ash. On the contrary, the greater the yield paid for, or the better the sugar has appeared to be, the less has been the practical yield. After several years' negotiations with a committee chosen by the Society of Beet-sugar Industry, which unfortunately fell through, the Society of German Sugar Refiners has thought it necessary to issue a resolution on its own account aimed against this ever increasing evil. It has decided after the first of July, 1893, to purchase raw sugar only upon a new "yield" which is determined by subtracting from the polarisation $2\frac{1}{4}$ times the total non-sugar. The number $2\frac{1}{4}$ has certainly no scientific meaning, but practically has two great advantages; in the first place it is the mean between the amount of non-sugar as actually present when the old method of calculation was introduced (1 ash + 1 organic matter=2), and that present in the sugar worked in the German Refineries in 1891-92 (1 ash + 1.5 organic matter=2.5) which proportion moreover has since increased. In the second place, normal sugar which contains not more than $1\frac{1}{4}$ organic for 1 of ash, comes out by the new method the same as before, since 1×5 is almost exactly the same as $2\frac{1}{4} \times 2\frac{1}{4}=5$ (approx.) Sugars which contain more than $1\frac{1}{4}$ organic to 1 of ash come out worse, those which contain less better than before. As a matter of fact every refinery will willingly pay as much or more for a high yield, when they know that they really get something for their money, whilst hitherto the statement of yield on which the sugar was bought stood in no practical relation to the amount which could be actually realised in the works. The statement that the new regulation has been adopted with the object of lowering prices is therefore completely erroneous, more especially since the present price is entirely determined by the position of the general market. It is, however, intended that in future only such sugars shall obtain a higher price which actually hold out a prospect of a higher practical yield, i.e., the purchaser wishes to obtain actual value for his money. During the last few years it is just this point which has proved deceptive, and the demand for a change to a more stable state of affairs is thoroughly justifiable.

THE AUER INCANDESCENT LIGHT.

IN lecturing recently before the Chemical Society of Aix-la-Chapelle Dr. Polis gave a description of the Auer burner, for the production of an incandescent gas light. The principle of the burner is familiar, being of the mantle pattern, and consists of an ordinary Bunsen burner, fitted with a mantle of specially prepared oxides, which are heated to incandescence by the combustion of the mixture of air and gas.

The most interesting of many interesting experiments were those made to ascertain how far this burner effected, from

A HYGIENIC POINT OF VIEW,

the atmosphere of the room in which it burnt.

In describing his experiments Dr. Polis says the influence upon the atmosphere is chiefly determined by the increased quantity of carbon dioxide in the air and also the elevation of its temperature. The Auer burner consuming about 50% less gas than an ordinary burner would naturally lead one to suppose that the increase of temperature and carbon dioxide would be correspondingly small. This point was established by the following experiment. An ordinary Argand burner was set burning in a room, in which the percentage of carbon dioxide had been estimated at two different places. The temperature was also taken at five points, namely, about a yard from the two windows, at the same distance from the ceiling and floor, and in the centre of the room.

At the end of four hours the percentage of carbon dioxide was again estimated, while the temperature at the different places enumerated was taken every half-hour. The next day a precisely similar experiment was made with an Auer burner, with the following results:—With the Argand burner the percentage of CO_2 rose from 0.992% to 4.386%; with an Auer burner, from 0.946% to 2.373%; the increase with the latter burner being only 42% that of the former. The amount of gas consumed was not actually measured, but the supposition that about half as much is burnt with the Auer as with the Argand burner is thought to be pretty well confirmed by the following comparison of the temperatures in the room:—

	Increase in temperature.	
	With Argand.	With Auer.
Middle of room near ceiling.....	8°	3.7°
Midway between ceiling and floor....	3.6°	1.6°
At the floor.....	2.1°	1.1°
Near the window.....	2.5°	1.3°
Near the opposite wall.....	2.8°	1.5°

It is further claimed for the Auer burner, however, that its advantages do not stop short here.

Apart from the reduced production of carbon dioxide and heat, there is also another point which, on sanitary grounds, tells in its favour. Being constructed on the Bunsen principle, complete combustion of the gas is ensured, and consequently there are none of the deleterious products of incomplete combustion to escape into the air of the room; nor are there any of the inconveniences attendant upon a sooty flame. Experiment showed that it was possible to spend several hours in a room in which an Auer burner had been burning for 527 consecutive hours without experiencing any unpleasant effects, while in a room in which an Argand burner had been burning all night, lassitude, &c, was repeatedly experienced after being in the room for a comparatively short period.

THE USE OF GILDED PLATINUM FOR VITRIOL CONCENTRATING APPARATUS.

By W. C. HERÆUS.

THE author, in writing upon this subject, says, in the *Chem. Zeit.*, some thirty-eight of the apparatus constructed by him are already in use, eight of them being in England and America. According to the experience hitherto gained, the loss of weight of the completely gilded apparatus is not only seven times, but from 20 to 40 times less than with the old platinum apparatus. It is essential for such a result that the whole of the interior surface of the still be covered with gold, for only in this way is the full advantage of the gilded platinum to be attained. In the upper part of the apparatus, which is not touched by the acid, the layer of gold may be quite thin. It has proved to be unsatisfactory to stop the layer of gold exactly at the surface of the liquid, because the nearest portions of platinum become moistened with the boiling acid and are much attacked, so that differences of thickness soon arise. On the other hand, Faure and Kessler pans, gilded as far as the lute and Delplace apparatus, in which the gilding carried only a few centimetres into the upper portion, have lasted

very well. The Faure and Kessler pans, as described above, have already been introduced into many works. According to the experience gained at the chemical works at Griesheim with a Prentice apparatus completely covered with gold, and which is used almost exclusively for the production of 98% acid, the apparatus will work for at least 15 years before requiring a new bottom, whilst a platinum still would require similar repairs at the end of a year and a half. As regards the economy of the apparatus, it is of importance to note that a considerable amount of the gold which goes into solution is deposited in the metallic form as a red powder in the platinum exit tube. If it were possible to collect the whole of the gold in this form, no loss of material would have to be feared. The preparation of 98% acid, which has been undertaken in so few works on account of the great wear of apparatus, can now, however, be carried out without trouble.

THE ASHTON-UNDER-LYNE TECHNICAL SCHOOL.

THE Technical School and Free Library which have been built for the Borough of Ashton-under-Lyne were opened recently. The sum of £10,000, being placed at the disposal of the Corporation by the trustees of the late Mr. G. Heginbottom, and a grant of £1,000, having been obtained from the Government towards the building, it was decided to build a Technical School and Library. The trustees directed that none of the money given by them should be expended in fittings or apparatus, and the Sub-Committee, which had become merged into a Technical Instruction Committee, with the Mayor as Chairman, recommended that a rate of $\frac{3}{4}$ d. in the £ should be levied. This was agreed to, and last year was increased to 1d. in the pound. Application was made to some of the Universities for gifts of books, and the Sub-Committee were authorised to make provision for the necessary apparatus. This was done, not from the Science and Art Department catalogue, but after personal inquiry and investigation, the result being that the school is singularly well equipped in apparatus of the best character for science teaching and instruction on technological subjects. The general principle has been kept in view that the institution should not be made a school for the teaching of trades, but that its main object should be the training of the students in the principles of the arts and sciences that underlie the various processes of manufacturing industry. Art and science classes have been at work for some time in the town, the number of students attending them at the close of last session being 1,200. In the art school the Committee were fortunate in securing the services of Mr. S. Carrodus, who has filled the post of lecturer on the antique at South Kensington. Mr. Carrodus has given material assistance in the selection of castes, statues, and other objects, and in the general development of the art side of the school. The institution, it may be stated, has four sources of income, viz.: grants from the County Council, the revenue derived from the penny rate, students' fees, and grants from the Science and Art Department. The building itself, the exterior of which is of stone, with a handsome tower, has been erected on the most approved system for the purposes to which it is to be devoted. Special attention has been paid to the securing of the utmost amount of light and air, with the result that every department has an exceedingly bright and attractive appearance. An art exhibition has since been opened in the schools, and the walls are already filled with pictures and drawings.

Trade Notes.

MOISTURE IN CHEMICAL WOOD PULP.—The Scandinavian makers of chemical wood pulp, at their last general assembly, stated that the standard atmospheric moisture in chemical wood pulp is 12 per cent., viz., that 100 kg. air-dry pulp contain 88 kg. absolutely dry pulp and 12 kg. moisture.

CURIOSITIES OF MIS-NAMING—There are a few people who seem to have, as the sole aim and object of their existence, the desire to inform the world at large that it is altogether wrong. Such an one it must have been who took the trouble to compile the following:—Arabic figures were not invented by the Arabs, but by the early scholars of India. Cleopatra's needles were not erected by that queen, neither do they commemorate any event in her history; they were set up by Rameses the Great. The Jerusalem artichoke has no connection whatever with the holy city of the Jews. It is a species of sunflower, and gets its name from girasole, one of the scientific names of that genus of plants. The word "pen" means a feather, and is from the Latin penna, a wing. Surely the expression of a "steel pen" could be improved upon. Galvanized iron is not galvanized at all, but is

with zinc by being plunged into a bath of that metal and acid. Pompey's Pillar at Alexandria was neither erected by nor to his memory. So far so good. But the next instance of being given is a curiosity of curiosities, for we learn that common is not a salt, and has long been excluded from the class of enominated "salts." The compilers of elementary science must have been woefully misleading the budding chemist for fear if this is so. It were better perhaps to accept the fact of the "mis-named" compound. *Ex.*

ST. HELENS SEWAGE BILL.—The St. Helens Corporation amended by the Police and Sanitary Committee of the House of Commons has been before the examiner of the House of Lords. Having been given of the compliance of this Bill with the orders of that House, the Bill was allowed to proceed.

SMOKE NUISANCE IN CHESHIRE.—On Tuesday last week, at the Petty Sessions, Messrs. Bowman, Thompson, and Company, chemical manufacturers, Lostock Gralam, near Northwich, summoned by the Northwich Rural Sanitary Authority for disobedience of a magistrates' order made in April, 1892, for the abatement of a nuisance arising from the emission of black smoke. The evidence showed that since the issue of the order defendants had been on three distinct occasions for breaches extending over 10, 20, and 30 days respectively. The Nuisance Inspector deposed that in April 1893 he had taken 40 observations of emissions of black smoke varying from 40 to 240 minutes. As a matter of fact the smoke was continuous, and could be seen for miles. Dr. Bowman, the chief of the firm, admitted that the chimney emitted more smoke than was necessary, but they had been experimenting with appliances for the abatement of the nuisance. All they went into one chimney, and that was the reason why they had been so troubled. They had now, however, hit upon a device which would practically remove the grievance, and all they were waiting for was the arrival of the machines. The magistrates stated they could say that there had not been an excessive amount of smoke, and they were obliged to impose a penalty, although they would refer the matter to the Rural Sanitary Authority that in the future if they could not abate the nuisance they should be dealt with as possible. A fine of £20. (10s. a day) was imposed.

IMPORTATION OF ADULTERATED BUTTER.—In connection with the subject, mention of which was first made in our "Parliamentary Notes" of last week but one, Mr. Harold Faber, Agricultural Commissioner to the Danish Government, writing to the *Times*, says:—The Danish Government has lately pointed out to the Board of Agriculture how the adulteration of margarine of the Hamburg factory butters can in some cases be proved by chemical analysis, and when requested to do so, furnished samples of the butter, which upon analysis were found to be unmistakably unadulterated. Still these butters are marked "guaranteed pure butter." These and similar scientific analyses are manufactured abroad with the chief object of being imported into this country; therefore the difficulty of getting at the real thing. One shipper abroad represents many hundred retailers in this country; therefore, and because of the severe Continental laws against adulteration, the advantage of stopping the fraud at the makers' place. This reasoning caused me, about a year ago, to urge the Danish Government a plan for an international convention directed against this trade. The Danish Government has since entered into the Government of this country about this matter, still, I think, under consideration. Lord Playfair's argument in favour of such a convention, that "the experience of the Sugar Convention has shown that it was perfectly hopeless to try such a plan," is convincing. It is useless for some countries to join a convention for abolishing bounties on sugar when some other countries by abstaining from the convention get an unfair advantage in disposing of surplus production. By refusing to join a convention against adulteration of butter a country would get no such advantage, but only lower the reputation in the market for its products."

MINING EXPLOSION AT A FOUNDRY.—Recently the workmen at the Llanfyllid Foundry, Bangor, were engaged recasting a quantity of iron, etc., among the stuff being a 40 pounder shell, apparently. The shell was put into the furnace with the other scrap, and time drawn out again, and for some reason laid aside on the anvil. It suddenly exploded with a terrific noise that sent the workmen flying for their lives, and brought hundreds of outsiders to the foundry in a minute. Wonderful to say, not a single workman was hurt, either in the foundry or in the densely-populated town of Llanfyllid, in which the foundry is situated, and the damage to the workshop is trifling. The shell is supposed to have been cast from the Aber Sands after the volunteer encampments, and the explanation of the slight damage done by its explosion which is suggested is that the charge had been almost completely quenched by the sea-water, leaving but little of the explosive sufficiently dry to explode the projectile.

PRESERVING BUTTER WITH CO₂.—It is some time since the solidification of carbon dioxide has been effected, and in such a manner as to render the article of considerable commercial value, and readily adapted to a multitude of useful purposes. Two fresh instances, says *Le Génie Civil*, have recently presented themselves, of the extensive sphere opened to the application of the frozen gas. By its aid, butter can be preserved, without in the least interfering with its taste or general properties. The process of preservation consists in placing the butter in an iron vessel or can provided with a pipe and tap, by means of which the carbonic acid is injected under a pressure of six atmospheres, and drives out the air. In this condition the butter will remain fresh for four or five weeks. The second instance is one in which the carbonic acid is forced into whey to the point of saturation, and converts that liquid into a refreshing and agreeable beverage which "fizzes" like champagne. The carbonated whey can be enclosed in syphons like ordinary mineral waters, and will remain fit for use for the next six weeks.

Parliamentary Gossip.

RIVERS POLLUTION.

The Rivers Pollution Prevention (No. 2) Bill has been read in the House of Lords a third time and passed.

ADULTERATED BUTTER.

In the House of Commons recently Mr. J. Ellis asked whether a proposal had been received from the Danish Government for the meeting of a conference with a view to dealing with the international trade that now exists in adulterated butter.

Sir E. Grey: The Danish Government have made such a proposal, and after a consultation with the various departments concerned a reply has been returned to the effect that Her Majesty's Government would not feel justified in taking the initiative in the international action proposed, but will be glad to consider any further practical suggestions which the Danish Government may have to make.

FERTILIZERS AND FEEDING STUFFS BILL.

This Bill was read a second time and was referred to the Standing Committee on Trade and Agriculture.

RIVERS POLLUTION PREVENTION BILL.

This Bill passed through Committee, and was then read a third time and passed.

Reports of Companies.

THE ELECTRIC CONSTRUCTION CORPORATION.

An extraordinary general meeting of this Corporation was held last week, at the City Terminus Hotel, London, Sir Daniel Cooper in the chair, to consider resolutions for winding up the company voluntarily with a view to its reconstruction, the capital of the new company to be £400,000, in 150,000 ordinary shares of £2. each and 50,000 7 per cent. cumulative preference shares of £2 each, and authorising the liquidators to transfer to the new company the assets and undertaking of the corporation. There is also to be £150,000, in first mortgage debentures and £100,000, in second mortgage debentures. The chairman stated that during the past year seven directors had retired from the board, and three new directors—Mr. D. Plunket, M.P., Mr. James W. Barclay, and Mr. Emile Garcke—had been appointed. They, therefore, had now practically a new board. He was most grateful for the changes that had been made. The directors had worked very hard. It had been a very difficult time for all of them, and if they had not stood well together the consequences to the corporation might have been very serious. The changes in the staff had already produced good results. The financial position had presented many difficulties, and the result of their investigations was that a thorough reorganisation of the business and a reconstruction of the company were absolutely necessary. The directors were convinced that the best way to carry out the reorganisation was by the scheme proposed. The position of the company was by no means what the price of the shares indicated, and the directors believed that with careful management and the energy with which they intended to push the business there was a prosperous future before the new company. Mr. Emile Garcke afterwards addressed the shareholders at some length on the position of the company. There had been mismanagement in the past, but with strict economy and prudent management there was no reason why they should not retrieve the errors of the past and occupy a leading position, and, in many respects, the leading position in the electrical industry. The shareholders were only asked by the scheme to write off some of the nominal value of their shares, and there was a prospect of increasing their real marketable value. Resolutions were passed in accordance with the object of the meeting.

NOTICES.

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Market Reports.

TAR AND AMMONIA PRODUCTS.

The tar products market is still in a stagnant and deplorable condition, and matters seem likely to go worse, as large installations, both of Semet Solvay and Otto ovens are in progress on the continent. There will soon be benzol enough and to spare, so that gas-tar will not be much longer valued for its naphtha contents. As a consequence of this, gas-tar has considerably declined in value, and 10s. is considered quite an outside price, 7s. 6d. being more like its real value. Anthracene will not be much affected by these schemes, and consequently is without variation.

The sulphate of ammonia market is exceedingly firm; there has been more doing and an undercurrent indicates that parcels are badly wanted. It is very evident that as the month advances higher prices will prevail, as consumers' needs seem far from satisfied. To-day's prices are Beckton £13 7s. 6d.; London £13 5s. 0d.; Hull, Liverpool and Leith £13 5s. 0d.

REPORT ON MANURE MATERIAL.

There continues to be good enquiry for all kinds of manure material, but prices for the most part hinder business.

Quotations for 75/80% Florida phosphate rock, 1893-94 shipment, remains 8½d per unit, c.i.f., in cargoes to United Kingdom, but for Continental ports ¼d. more is generally asked. Nearest value of Peace River and hot-air-dried South Carolina River rock is 6¾d. per unit, c.i.f., in cargoes to United Kingdom. There is nothing doing in River Plate bones in the absence of cargoes offering, but there would probably now be buyers at £4 7s. 6d., shippers of East Indian crushed bones and bone meal are not offering meantime, prices are therefore nominal, for the former about £4 7s. 6d., and for the latter about £4 10s. per ton; autumn shipment, £4 5s. per ton paid for good charring bones, ex quay Liverpool.

Nitrate of soda is very firm in all positions: spot, Liverpool, owing to reduced stocks, 10s. has to be paid ex quay; due cargoes are worth 8s. 10½d. to 9s., April-May sailings about 8s. 10½d. per cwt., and later shipments 9s. to 9s. 1½d.

MISCELLANEOUS CHEMICAL MARKET.

There is no material change in position of any of the leading products of the alkali trade. There is still a downward tendency in price of chlorates, current quotations being 8d. and 9d. respectively for chlorate of potash and soda. For forward deliveries over twelve months, 1d. per lb. lower is quoted. Bleaching powder continues in brisk demand for export, and the price all round is firm. Some business is also reported as having been done over 1894. Caustic soda maintains a

steady position, and there is a fair amount of business doing for Prices current are unchanged, viz.: f.o.b. Tyne, 77%, £11. Liverpool, 74%, £10 10s.; 70%, £9 10s.; 60%, £8 10s.; 60%, £8 5s.; ten-ton lots and upwards, 58%. Alkali and soda without any change since last reported. Soda crystals £2 15 and £2 12s. 6d. bags, on rails at makers' works. Recovered still very much depressed by the resales of Sicilian at low rate quotation for recovered is £4. to £4 2s. 6d. per ton at maker. For vitriol and muriatic acids the demand is nominal, and price without alteration. Sulphate of copper is a turn lower. The ammonia salts in all qualities continues good, and the advance is well maintained all round. Carbolic acid crystals are moving freely, and there is on the whole a fairly good enquiry for all: carbolic—liquid, 95/97%, being value for 1s. 9d. to 1s. 10s. per Aniline oil and salts are still depressed, and moving at 1s. White powdered arsenic selling freely at £13 10s., nett Gars Prussiate of potash, 9¼d. to 9½d. Bichromates unaltered. acetate of lime is at a standstill, and few transactions are for current value being £5 17s. 6d. to £6 per ton for spot del Manchester district. For other acetates the demand also is good there is no material change in values.

THE COPPER MARKET.

Messrs. Harrington and Co. in their fortnightly report date pool, July 4th, 1893, state:—

Charters for the past fortnight are cabled as 1,600 tons, against tons for the previous fortnight, making 1,850 tons for the month total since 31st December is 10,100 tons. Same time last quantity was 10,950 tons. Exchange 15½d.

During the past fortnight the sales of G.O.B.'s and G.M.B.'s at to rather over 9,000 tons, the highest prices were paid on June when cash Warrants obtained £45 2s. 6d., and three £45 8s. 9d. Market opened on the 21st June at same price soon gave way, and by the 24th had declined to £43 17s. £44 3s. 9d. respectively; then Silver began to fall, and Copper sympathy declined till £43 2s. 6d. and £43 10s. was accepted cash and forward on the 29th, with Silver at 31½d. On 1 Silver declined to 30½d. but recovered the following day. On Monday, 3rd June, prices touched £43 12s. 6d. and £44 cash and forward, but again receded to £43 8s. 9d. and £43 respectively, closing steady to-day at £43 7s. 6d. cash £43 16s. 3d. three months.

The sales of furnace material comprise—500 tons Chili Reg arrive per s.s. *Araucania*, at 9s. 400 tons Columbia Matte, there, but delivered Swansea, at 9s. 6d.; 300 tons Columbia (spot) at 9s. 4½d.; 109 tons Australian Matte, delivered Swansea; 40 tons ordinary Montana Matte at 9s. 1½d.; 200 tons Ore at 8s 10½d.; 74 tons Californian Ore at 8s. 9d.; an Peruvian Ore at 8s. 9d. per unit. 1200 tons Argentiferous Matte, to arrive, and 115 tons Argentiferous Chili Regulus on terms. At Swansea—700 tons Namaqua Ore at 8s. 9d. per unit.

The total stocks in Liverpool, Swansea, London, and Havre decrease of 207 tons for the fortnight, but with a decrease of 3 for the previous fortnight, makes a total decrease of 546 tons month.

The stocks include about 1,853 tons of copper sold, but delivered to smelters.

The visible supply shows an increase of 605 tons for the fortnight but with a decrease of 998 tons for the previous fortnight, decrease of 393 tons for the month.

The total deliveries for the fortnight are 4,609 tons, which 4,567 tons for the previous fortnight, makes a total of 9,176 tons the month.

The present stock of English G.M.B.'s in warehouse, Liverpool, 9 tons, against 10 tons on the 16th ult. Swansea—Nil.

THE METAL MARKETS.

LONDON, WEDNESDAY.—Pig iron steady. Scotch closed at 41s. 10½d. cash. Middlesbrough 35s. 3d. cash, and 44s. 8d. Copper, steady: Chili bars, G.O.B.'s and G closed at £42 15s. to £43 2s. 6d. cash, and £43 2s. £43 10s. three months. Tin quiet: Straits closed at £82 £82 15s. cash, and £81 5s. to £81 15s. three months. At £84 10s. English ingots, £87. Lead, firm: Spanish, £10 5s. 7s. 6d. English, £10 7s. 6d. to £10 10s. Silesian Ordinary, £17 15s. Nickel 1s. 8d. Antimony, £39. Quick First hands £6 17s. 6d.; second hands, £6 16s. 6d. Copper

Cape, $1\frac{3}{8}$ to $1\frac{1}{8}$. Copiapo, $1\frac{1}{4}$ to 2. Libiola, $2\frac{7}{8}$ to $3\frac{1}{8}$. Mason and Barry, $1\frac{3}{4}$ to $1\frac{1}{2}$. Rio Tinto, $14\frac{1}{16}$ to $14\frac{1}{16}$; Tharsis, $4\frac{1}{16}$ to $4\frac{1}{16}$; Namaqua, $\frac{3}{8}$ to $\frac{1}{2}$.

WOLVERHAMPTON, WEDNESDAY.—To day was quarterly meeting. Marked bars were re-declared £7. 10s., best hoops, single, and tee iron £8., and boiler plates £8. 10s. to £9. Sheet iron masters reported improved demand at £7. doubles and £7. 15s. lattens. Unmarked bars rather better at £6. to £6. 10s. merchant sorts, and £5. 10s. to £5. 15s. common. Pigs quiet, but strong at late advances; Derbyshires 42s. 6d., Northampton 41s. to 41s. 6d., Lincolns 45s. Coal dull. Steel active; prices improving.

GLASGOW, WEDNESDAY.—Market strong, with good business. Scotch done at 41s. 9d., 41s. 11d. and 41s. 10½d. cash, also at 42s. and 42s. 2d. one month; closing with buyers at 41s. 10½d. cash, sellers ask 41s. 11d. Middlesbrough done at 35s. 1½d. cash, also at 35s. 2½d. six days; closing with buyers at 35s. 3d. cash, sellers ask 35s. 4d. Cumberland hematite closes with buyers at 44s. 8d. cash, sellers ask 44s. 10d. Middlesbrough hematite closes with buyers at 43s. cash, sellers ask 43s. 6d.

LIVERPOOL OIL AND COLOUR MARKET.

OILS.—Palm oil is firm, sales of Lagos being made at £24 and Benin at £23., both transit. Olive is in rather better request at £32. 10s. to £42. per tun a/c to quality. Linseed is again the turn stronger, and is to-day firm at 22s. 3d. to 22s. 6d. per cwt. for Liverpool makes in export casks. Rape refined Stettin remains in *statu quo* at 29s. cwt. Cottonseed is firm, with a tendency to harden, and prices to-day have advanced slightly, quotations being 22s. 3d. to 24s. 3d. for Liverpool refined. Tallow is firmer but the business doing is small. Resin, common continues steady at 3s. 9d. cwt., fine grades are dearer. Spirits of turpentine are much easier in price, and there is a fairly good inquiry going on at 22s. 3d. per cwt. Petroleum is very quiet indeed at last week's quotations.

COLOURS unchanged and steady. Ochres: Oxfordshire, common, £10., medium, £12., best, £15.; Derbyshire, common, 40s.; medium, 50s., best, 60s.; Welsh, best, 70s., seconds, 50s., and common, 18s.; Irish, Devonshire, 40s. to 45s.; French, J.C., 55s. to 60s.; M.C., 65s. to 67s. 6d. Umber: Turkish quiet; Devonshire, 50s. to 55s. White lead, red lead, and oxide of zinc unchanged. Venetian red, £6. 10s. to £10. Cobalt: Prepared oxide, 9s. 9d.; black, 9s.; blue, 6s. Zaffres: No. 1, 3s. 6d.; No. 2, 2s. 6d. Oxide of iron: Common, £6.; medium, £10.; finest, £20. Zinc oxide, £23. to £25.

WEST OF SCOTLAND CHEMICALS.

GLASGOW, TUESDAY.

In mineral oils and paraffins there is still a general want of activity, the only exception at present being the lighter gravities of lubricating oils, which are getting more and more into demand for coal-gas enriching purposes. Two more gas corporations in Scotland are announced as having adopted the process, and it seems the case that while at once greatly improving the quality of the light got, the blended gas can be made at from 6d. to 9d. reduction on the old charges, there being also a prospect of a further extension of money benefits in the course of time. The market value for the oil chiefly in request (865°) has not mounted as yet, but no doubt it will.

In general chemicals, prices are on report as a shade weaker, so that the temporary closing of works in this quarter, and consequent arrest of production, arrive opportunely. Bleaching powder, however, is still in demand and firm, and caustic soda also, is reported as scarcer.

Sulphate of ammonia more than holds its own, being in very small supply for prompt business. As high as £13. 7s. 6d. is said to have been done, but if so, this must have been a special parcel.

Chief prices current are:—Soda crystals £2. 10s. nett, Tyne; soda ash £5. 5s. 6d. nett, Tyne; refined alkali £6. 10s. nett, Tyne; alum in lump, £5. 5s. nett, Glasgow; caustic soda, white, 74° £10. 10s., 70/72° £9. 10s., 60/62° £8. 10s., and cream 60/62° £8. 5s., all nett Liverpool; bleaching powder £8. 5s. nett Tyne; saltcake 24s; borax, English refined, £30., and boracic acid, £37. 10s. nett, Glasgow; bicarbonate of soda, 5-cwt. casks, £6. 10s., and 1 cwt. casks £6. 15s. less 2½%, Liverpool; bichromate of potash, 4½d. nett, for Scotch and English deliveries (for export, 4¼d. nett f.o.b. Glasgow); bichromate of soda, 3¾d. nett, for Scotch and English deliveries (for export, 3½d. nett, f.o.b. Glasgow); chlorate of potash 8¼d. less 5% Liverpool; nitrate of soda 9s. 3d.; sulphate of ammonia, £13. 3s. 9d. to £13. 6s. 3d. f.o.b. Leith; sal ammoniac, first and second white, £37. and £35. less 2½% any port; sulphate of copper, £15. 17s. 6d., less 5% Liverpool; paraffin scale, hard and soft, 1½d. per lb; paraffin wax 120° semi-refined 2½d.; paraffin

spirit (naphtha) 3¾d. a gallon; paraffin oil, burning, 4¼d. to 5¼d., at works, according to quality, for Scotch buyers (English sales about ½d. to 1d. lower); ditto (lubricating) 865° £3. 10s. to £3. 15s., 885° £4. 5s. to £5. 15s., and 890/895° £5. to £6. 10s. Week's imports of raw sugar at Greenock were 18,112 bags.

HULL PAINT, OIL, AND COLOUR REPORT.

TUESDAY.

OILS.—There is very little doing here of any importance, the exports of oil are considerably below the same time last year, being 1,635 cwt. of linseed oil, as against 2,154 cwt. for the same time last year, and cotton oil 2,385 cwt. against 3,807 cwt. Linseed oil has declined 10s. per ton on the spot. Cotton oil, refined, is very quiet; the quotations being:—Linseed oil closing steady, spot 20s. 6d. per cwt.; July-August, 20s. 3d.; September-December offered at 18s. 9d.; Casks 17s. 6d. and ordinary barrels 22s. 6d. per ton extra. Cotton oil, refined, is quiet at 20s. 3d. per cwt. naked spot; July-August 20s. 1½d.; November-April offers at 18s; crude spot or July-August, 19s.; and new oil for November-April, 16s. 9d. per cwt. naked; refined rape oil, 25s. 6d. in casks; turpentine 22s. 9d. per cwt. Olive oil is of slow sale, from £33. to £38. per tun. First pressure French castor oil of which there are good stocks 2½d. per lb.; common resin £3. 15s. to £4. per ton; petroleum jellies 26s. to 28s.

CAKES.—Linseed cakes continue firm at previous rates, prices having an upward tendency, 95% purity £8. 12s. 6d. per ton, good ordinary quality £7. 10s. per ton; Russians, £8. 7s. 6d. to £8. 10s.; Americans £7. 15s., cotton cakes in good demand and very firm. Finest Egyptian £5. 7s. 6d.; second quality £5. to £5. 2s. 6d. per ton. Rape cakes £3. 15s.

PAINTS.—The prices for these articles remain unchanged and demand is satisfactory. The chemical shipments show an improvement upon the same week a year ago, being 2,423 packages against 1,789 packages. The prices of white and red leads and zinc are unchanged. Paints ready mixed in various sized tins from 28s. to 30s. per cwt. Enamels 4s. 9d. dozen. Oxide of iron, dry, £9 to £18. per ton. Venetian red, dry £6. to £10 per ton. French ochre, J.C., 55s. to 60s. per ton. Fine linseed oil putty £6. per ton.

TYNE CHEMICAL REPORT.

TUESDAY.

Chemicals are steady, with a strong demand for caustic soda. Further forward business in sulphur has taken place at better prices. Bleach continues scarce at £8. 5s. per ton, nett; soda crystals £2. 5s. and £2. 10s. per ton, gross weight, according to destination. Stocks extremely low.

Bleaching powder, softs, £8. 5s. per ton nett; hard, £8. 10s. per ton; caustic soda, 76/77%, £11. per ton, 70%, £9. 10s. per ton; recovered sulphur, 2 cwt. bags, £4. 2s. 6d. per ton; soda ash, 48%, £4. per ton, 52%, £4. 7s. 6d. per ton, 56%, £4. 15s. per ton; alkali, 36%, £3. 15s. per ton; white alkali, 48%, £4. 15s. per ton, 50%, £5. per ton, 52%, £5. 15s. per ton; hyposulphite of soda, in 5-7 cwt. casks, £7. per ton, ditto, in 1 cwt. kegs, £7. 15s. per ton; silicate of soda, 75° Tw., £2. 15s. per ton, 100° Tw., £3. 10s. per ton, 140° Tw., £3. 17s. 6d. per ton; soda crystals, in casks, £2. 10s. per ton gross weight, in 2 cwt. bags, £2. 10s. per ton nett weight; chlorate of potash, 8¼d. per lb. less 6%; pearl hardening, £3. per ton nett; pure white sulphate of alumina, £4. 2s. 6d. per ton; blanc fixe, £7. 10s. per ton; chloride of barium, £7. 10s. per ton; carbonate of alumina, £28. 15s. per ton nett; aluminate of soda, £33. 15s. per ton nett; in 5 ton lots, £28. 10s.; hydrate of barium, £10. per ton nett.

South Durham salt, steady at 9s. 1d. per ton, f.o.b. Tees.

Coals: There is a steady demand for best Northumbrian steam, and price now asked is 9s. 6d. per ton, f.o.b. Tyne. Small coal still plentiful at 3s. 6d. per ton; gas coals in slightly better demand at 6s. 3d. and 6s. 6d. per ton; coke in good demand at 14s. per ton.

New Companies.

Maracalbo Asphalte Co., Ltd.—CAPITAL £120,000, in shares of £5. each. This company has been formed to acquire certain deposits in South America, and to carry on the business of asphalt and petroleum producers and manufacturers. The subscribers to the memorandum of Association are:—P. Mitchell, 55, Onslow Gardens, Highgate, London, N., gentleman; F. Winter, 64, Reedworth-street, London, S.E., clerk; H. A. Mabey, 1, Virgo-terrace, London, S.W.,

shorthand writer; G. S. Bonney, 28, 29, St. Swithin's-lane, London, E.C., clerk; P. L. H. Canning, 14, Hogarth-road, London, S.W., solicitor; A. W. Higgs, 66, Ondine-road, London, S.E., clerk; A. H. Downes, 28, 29, St. Swithin's-lane, London, E.C., clerk.

Olive Bros., Ltd.—CAPITAL £60,000., in shares of £10. each. This company has been formed to take over as a going concern the business of Messrs. Olive Bros., Woolfold, Bury, and to carry on the business of manufacturers of paper, etc. The subscribers to the memorandum of Association are:—T. Holt Walshaw, Bury, cotton manufacturer; R. Preston, Holcombe, near Manchester, manufacturing chemist; T. Cornwall, Bury, calico printer; T. Olive, Bury, paper manufacturer; H. Olive, Elton, Bury, widow; M. Butcher, Bury, married woman; T. Thornley, Manchester.

Sweetapples United Paper Mills, Ltd.—CAPITAL £50,000., in shares of £5. each. This company has been formed with a view to taking over as a going concern the business hitherto carried on by E. Sweetapple at "Allenwood Paper Mill," near Carlisle, "The Derwent Paper Mill," near Workington, and the "Marron Bank Paper Mill," near Braithwaite, all in Cumberland; also the business carried on at the Knowsley-road Parchmentising Works, Bootle, near Liverpool. The subscribers to the memorandum of Association are:—E. Sweetapple, Corby Hill, paper manufacturer; D. Livingston, Workington, paper maker; J. A. London, 29, Eldon-street, Newcastle-on-Tyne, paper maker; T. Sweetapple, Allenwood, near Carlisle, paper maker; H. Sweetapple, Seaforth, Liverpool, paper maker; M. Joshua, Corby Hill, spinster; J. J. Saint, Carlisle, chartered accountant.

Vrila, Ltd.—CAPITAL £8,000., in shares of £5. each. This company has been formed to acquire certain rights for the manufacture of artificial ivory, and for treating nitro cellulose to manufacture certain compounds therefrom, such as water proofing varnish, imitation horn, whalebone, ivory, etc. The subscribers to the memorandum are:—H. S. Mountain, Selsdon-road; W. Norwood, hop salesman; H. Bonner, Gipsy Hill, London, S.E., merchant; J. Walton, 132, Christchurch-road, London, S.W., merchant; F. Greening, 84, Albert-street, London, N.W., manufacturing chemist; E. E. Bonner, Wanstead Park, Essex, brewer; E. Bonner, 500, Commercial-road East, London, E., brewer; C. D. Marshall, South Newington, London, N., engineer.

The Patent List.

This list is compiled from Official sources in the Manchester Technical Laboratory, under the immediate supervision of George E. Davis and Alfred R. Davis, who report professionally upon the value of Chemical Patents.

APPLICATIONS FOR ENGLISH LETTERS PATENT.

Improvements in Liquid Electrodes. E. Savary d'Odiardi and E. Savary d'Odiardi. 12,492. June 26.
Production of Blue-Green Colouring Matters of the Malachite Green Series. O. Imray. 12,515. June 26.

Improvements in Sanitary Ventilation. G. M. L. Mecanero. 12,519. June 26.
Production of Aluminium and its Alloys. W. Mills. 12,534. June 27.
Wool Drying Apparatus. J. H. Stone. 12,560. June 27.
Improved Production of Cyanides. J. Addie, J. Cunningham and W. Macfarlane. 12,572. June 27.
Improvements in the Purification of Iron and Steel. A. J. Boulton. 12,588. June 27.
Clay-Washing and Mixing Apparatus. C. W. F. Mactz. 12,598. June 27.
Fixing Atmospheric Nitrogen and Producing Bicarbonate and Formiate of Ammonium and other Formiates. P. R. V. de Lambilly. 12,604. June 27.
Electrolytical Purification of Sewage, producing Electricity as a By-product. W. Walker. 12,625. June 27.
Azo Colouring Matters. Read, Holliday & Sons. 12,636. June 28.
Joining Stoneware Sewerage Pipes. F. S. Mayo. 12,682. June 28.
Apparatus for the Conversion or Absorption of Carbonic Acid Gas in Mines, etc. W. S. Simpson. 12,766. June 29.
Apparatus for Evaporating Brine, etc. F. W. Scott, E. G. Scott and F. W. Scott. 12,774. June 29.
Manufacture of Carbon for Electrical Purposes. J. L. Dobell, C. P. Shrewsbury, F. L. Marshall and J. Cooper. 12,787. June 29.
Treating Cyanide Solutions of Gold and Silver. J. C. Montgomerie. 12,789. June 29.
Smoke-Preventing Furnaces. J. Sadler. 12,833. June 30.
Preserving Oils and Fats. E. Watel. 12,847. June 30.
Improvements in Tanning. C. Heinzerling. 12,849. June 30.
Improved Tanks for the Electrolytical Decomposition of Solutions of Sodium or Potassium Chloride. J. C. Richardson. 12,857. June 30.
A Superfatted Binioid of Mercury Soap. C. R. Illingworth. 12,884. July 1.
Improved Filter. W. H. Barr. 12,887. July 1.
Utilising Sulphite Pulp Lyes. A. Mitscherlich. 12,927. July 1.
Production of a Diamidophenol and its Acid Derivatives. P. Monnet and M. C. Traub. 12,928. July 1.
Purification of Water and Apparatus therefor. L. Maiche and C. Maiche. 12,941. July 1.
Manufacture of Ortho-halogen-phenol and Production of Pyro-Catechine therefrom. H. Baum. 12,942. July 1.

Gazette Notices.

PARTNERSHIPS DISSOLVED.

T. YONNIE, R. YOUNG, J. F. YONNIE, A. LEE, J. MOFFATT, and M. AUDAS, oil, colour, varnish, and painting-brush manufacturers, Newcastle-on-Tyne.
E. PREECE and G. E. TOWNSEND, lime merchants, Bridgend, under the style of the Berthaw Blue Lias Lime Company.
J. WHITE and F. P. WEBSTER, under the style of J. White and Co., oil and tallow refiners, china clay merchants and drysalters, Widnes.

BANKRUPTCY ACTS, 1883 and 1890.

Receiving Order.

HILLARY, JOHN RAYMENT, Manchester, accountant and secretary of the Shirley-wich Salt Works Co., Ltd.

Adjudication.

BURBIE, JAMES, late Litherland, Lancashire, now Liverpool, BURBIE, HUGH, Liverpool, and SPENCER, EDWARD, Levenshulme, Lancashire (and trading alone as E. Spencer and Co., at the Openshaw Bridge Oil Works, Openshaw, Lancashire, oil merchant and refiner), carrying on business in co-partnership as Burbie Bros. at the Phoenix Lard Works, Liverpool, and as E. Spencer and Co., Birkenhead, late trading as Burbie Bros. and E. Middleton and Co., Salford, oleo manufacturers and lard refiners.

IMPORTS OF CHEMICAL PRODUCTS

AT

THE PRINCIPAL PORTS OF THE UNITED KINGDOM.

LONDON.			
Week ending July 1st.			
Acetic Acid—			
Holland,	99 pkgs.	Beresford & Co.	
"	50	J. Owen	
Acetone—			
Holland,	13 pkgs.	A. & M. Zimmermann	
Alkali—			
France,	354 c.	Arnati & Harrison	
Alum—			
Holland,	40 pkgs.	Ohlenschlaeger Bros.	
Aluminium—			
France,	£130	Major & Field	
Belgium,	1 t.	"	
Antimony—			
New Zealand,	59 t.	Sanderson, Murray & Co.	
Melbourne,	5	Welsh, Perrin & Co.	
France,	5	B. & F. Wf. Co., Ltd.	
Sydney,	31	W. B. Marcus	
Asbestos—			
Italy,	£500	Beck & Pollitzer	
"	520	Mory & Co.	
"	340	Brit. Asbestos Co.	
"	30	Girard, Bros. & Co.	
"	101	London Asbestos Co.	
Barium Chloride—			
Holland,	200 pkgs.	Cotton Powder Co., Ltd.	
Germany,	200	Petri Bros.	
Barytes—			
Holland,	23 cks.	W. Pope & Co.	
"	44	W. Harrison & Co.	
Germany,	57	W. Fenton	
Belgium,	31	J. L. Lyon & Co.	
Boracic Acid—			
Italy,	2 pkgs.	G. Boor & Co.	
"	12	Beresford & Co.	
"	40	J. Puddy & Co.	
Caoutchouc—			
Zanzibar,	100 c.	Hale & Son	
E. Indies,	42	H. Kiver & Co.	
Italy,	20	N. S. S. Co., Ltd.	
U. States,	113	Williams, Torrey & Field	
France,	31	Stiebel Bros.	
Zanzibar,	110	L. & I. D. It. Co.	
Madagascar,	135	Prop. Bull Wf.	
Carbonic Acid Gas—			
Holland,	25 pkgs.	Volcanic Eration Co.	
Castor Oil—			
E. Indies,	65 cks.	Cayzer, Irvine & Co.	
France,	10 brls.	Beresford & Co.	
Italy,	25 cs.	R. Morrison & Co.	
"	15	A. Hill & Son	
"	15	A. & M. Zimmermann	
"	25	A. Laming & Co.	
France,	8 brls.	B. & N. Whys. Co., Ltd.	
"	8 cks.	Bagnall & Bramwell	
Belgium,	29 brls.	Fuerst Bros.	

Cautic Potash — France, 100 c.	F. W. Berk & Co., Ltd. 355 Spies, Bros. & Co. Petri Bros.
Chemicals (<i>otherwise undescribed</i>) Germany, 26 pkgs.	T. H. Lee A. & M. Zimmermann W. Burton & Sons Craven & Co. L. & I. D. Jt. Co.
Chrome Ore — Sydney, 9 t.	Laughland, Mackay & Co.
Cream of Tartar — France, 5 pkgs.	M. Ashby, Ltd. W. C. Bacon & Co., Ltd. B. & F. Wf. Co., Ltd. Middleton & Co. Howards & Sons C. F. Gerhardt
Dextrine — Germany, 50 pkgs.	G. Ward & Sons
Dyestuffs — Aniline Belgium, 21 pkgs.	Sawer, Sons & Co.
Anthracene France, 37 pkgs.	Burt, Boulton & Co.
Cochineal Canaries, 5 pkgs.	G. S. Bruce Swanston & Co. Sperling & Williams
Gutch Holland, 10 pkgs.	J. Barber & Co.
Extracts Brisbane, 2 pkgs.	Gellatly, Hankey & Co. Skilbeck Bros. R. J. Fullwood & Brand U. States, 125 Skilbeck Bros. Germany, 4 L. & I. D. Jt. Denmark, 30 Sorensen & Co. Belgium, 10 Arnati & Harrison
Fustic B. W. I., 10 t.	Gillespie, Bros. & Co.
Indigo E. Indies, 30 Churchill & Sim	Benecke, Souchay & Co. W. Brands, Son Beggs, Dunlop & Co. Parsons & Keith D. Sassoon & Co. Torser, Hewitt & Co.
Logwood B. W. I., 10 t.	Gillespie, Bros. & Co.
Madder France, 2 pkgs.	Skilbeck Bros.
Myrabolams E. Indies, 295 pkgs.	J. Graves Whitstable, S. Co. Ross & Deering
Orchella Ceylon, 25 pkgs.	L. & I. D. Jt. Co.
Saffron Spain, 2 pkgs.	B. & N. Wf. Co., Ltd.
Sumac Italy, 100 pkgs.	R. Roberts F. Warner & Co., Ltd. J. Kitchen, Ltd.
Tanner's Bark Melade, 68 t.	Baxter & Hoare Scriven Bros. Leach & Co. Beresford & Co.
Turmeric E. Indies, 1,000 pkgs.	Lewis & Peat Elkan & Co. Ross & Deering L. & I. D. Jt. Co.
Farina — Holland, 100 pkgs.	Seaward Bros. M. Measday
Glucose — Germany, 250 pkgs.	250 c. R. G. Hall & Co. U. States, 650 5,323 300 1,630 L. & I. D. Jt. Co. 50 575 Prop. Chmblin's Wf. Trier, 250 250 Meyer & Co. B. & N. Whvs. Co. 350 2,000 Devitt & Hett 195 1,073 T. M. Duché & Sons 3,180 3,990 Un. Lightie Co., Ltd. 50 281 J. Keiller & Son 200 1,115 Pillow, Jones & Co. 155 930 Page, Son & East 50 308 G. White Prprs. Scott's Wf 100 561 315 1,340 L. Norman & Co. 100 534 W. Balchin 500 2,780 L. Sutro & Co. 2 12 Williams, Torrey & Co. 50 275 W. Isted
Guano — Belgium, 6 t.	G. M. Bauer
Iron Oxide — Persia, 500 t.	M. D. Co.
Iron Sulphate — Germany, 1 t.	H. Lambert
Lead Acetate — Germany, 14 pkgs.	F. Boehm
Manure — France, 200 t.	Arnati & Harrison Germany, 5 R. W. Greef & Co. Belgium, 1 Leach & Co.
Methyl Alcohol — Belgium, 8 dms.	Stein Bros.
Ochre — France, 8 cks.	J. Wimble Blundell, Spence & Co.
Painters' Colours — Belgium, 34 pkgs.	T. Palmer Flageolet & Co. Hernu, Peron & Co. Germany, 13 T. H. Lee 8 3 cs. Phillips & Graves 10 H. Lambert 5 Craven & Co. 15 L. & I. D. Jt. Co. 16 cks. Herrmann & Co. 12 C. S. Lovell E. Indies, 13 pkgs. L. & I. D. Jt. Co. Italy, 22 A. Laming & Co. France, 6 G. J. Thompson Holland, 2 cks. A. Zumbeck & Co.
Paraffin Wax — U. States, 149 brls.	Rowatt's Whf. G. H. Frank 2,358 J. H. Usnar & Co. 100 Fairclough, Dodd & Co. 1,523 pkgs. Williams, Torrey & Co.
Phosphate Rock — U. States, 143 t.	C. A. & H. Nichols
Pitch — Sweden, 50 brls.	C. W. Schmidt
Plumbago — Holland, 23 cs.	G. Rahn & Co.
Potash — Canada, 132 c.	Charles & Fox S. Ward & Co.
Potassium Bicarbonate — Holland, 50 c.	A. & M. Zimmermann
Potassium Chloride — Germany, 102 pkgs.	Anderson, Weber & Smith
Potassium Hydrate — France, 6 pkgs.	Spies, Bros. & Co.
Potassium Permanganate — Germany, 10 pkgs.	H. Lorenz
Pumice Stone — Italy, 4 t.	J. Kitchin, Ltd. A. Laming & Co. Beresford & Co. Keller, Wallis & Co.
Pyrites — Spain, 1,188 t.	Societe Commerciale
Quicksilver — Italy, 250 flks.	H. Bath & Sons
Rosin — France, 13 brls.	C. W. Schmidt U. States, 1,690 Fairclough, Dodd & Co. 1,719 Prod. Brokers Co. 2,500 F. & S. Chieseman & Co.
Saltpetre — E. Indies, 495 bgs.	Ralli Bros. Germany, 13 cks. Brown & Elmslie 3 W. H. Mitchell 70 T. Merry & Son 212 P. Hecker & Co.
Sodium Acetate — France, 50 pkgs.	S. F. Waters & Co.
Sodium Hypsulphite — Germany, 186 pkgs.	F. Boehm
Stearine — France, 120 bgs.	G. Boor & Co. U. States, 100 cks. Price's Candle Co. Holland, 81 Palmer & Co.
Sulphur — Italy, 300 t.	Co-op. L. Assn. Cartagena, 100 A. Hunter & Co. Italy, 3 Galbraith, Pembroke & Co. Belgium, 11 Fuerst Bros. Italy, 5 J. Kitchin Ltd. 12 G. Boor & Co.
Talc — E. Indies, 610	Berryman & Turnbull
Tartaric Acid — Holland, 16 pkgs.	Middleton & Co.
Turpentine — New Zealand, 214 brls.	Fairclough, Dodd & Jones
Ultramarine — Belgium, 10 cs.	3 pkgs. W. Harrison & Co. 28 cks. Leach & Co. Holland, 2 G. Rahn & Co. 3 Phillips & Graves Germany, 2 G. Steinhoff 2 Haefner, Hilpert & Co.
Yarnish — U. States, 12 pkgs.	Randall Bros. Belgium, 1 Tingle, Jacobs & Co.
White Lead — Germany, 23 cks.	M. Ashby, Ltd. France, 50 W. Harrison & Co. Germany, 11 Petri Bros. 26 S. H. Willoughby
Zinc Oxide — Holland, 125 brls.	M. Ashby, Ltd. Germany, 25 cks. Colthurst & Harding 5 Beresford & Co.
Zinc Sulphate — Germany, 16 pkgs.	W. J. Crook

Silver Sulph—		
Colon,	12 cs.	Sanchez & Gaffron
Soap—		
In transit,	407 pkgs.	Cunard S. S. Co., Ltd.
Marseilles,	55 cs.	
Soapstone—		
Bordeaux,	350 bgs.	G. G. Blackwell
Sodium Acetate—		
Rouen,	3 cks.	Co-op. W'sale Society, Ltd.
Sodium Chlorate—		
Havre,	50 kgs.	Cunard S. S. Co., Ltd.
Sodium Nitrate—		
Valparaiso,	2 cs.	
Stearine—		
Talcahuano,	6 bgs.	Duncan, Fox, & Co.
Antwerp,	25	
In transit,	30	
Sulphur—		
Antofagasta,	246 sks.	H. R. Martin & Co.

Talc—		
Marseilles,	8 bgs.	
Tallow—		
Baltimore,	37 hhds. 250 tcs.	
Boston,	105 53 cks.	
Rouen,	288 bgs.	Co-op. W'sale Society, Ltd.
New York,	150 hhds.	
Philadelphia,	125	
Campania,	195 hf.-pps.	
Tartar—		
Naples,	4 cks.	
Bordeaux,	9	
Tartaric Acid—		
Marseilles,	12 cks.	
Rotterdam,	11	
Turpentine—		
Savannah,	300 brls.	
Ultramarine—		
Rotterdam,	5 cs.	
Hamburg,	7	
Yarnish—		
Lisbon,	2 cks.	Johnson Bros.
Verdigris—		
Marseilles,	9 cks.	
Bordeaux,	3	
Waste Salt—		
Hamburg,	120 t.	
White Lead—		
Rotterdam,	84 cks.	
Zinc Ashes—		
Marseilles,	11 brls.	
Zinc Oxide—		
Rotterdam,	10 cks.	
Antwerp,	50 brls.	J. T. Fletcher & Co.
Zinc White—		
Rotterdam,	100 cks.	O. & H. Marcus

HULL.

Week ending July 1st.

Acetate—		
New York,	861 pkts.	Wilson, Sons, & Co., Ltd.
Acid—		
Leghorn,	1 ck.	
Marseilles,	1	
Alum—		
Rotterdam,	40 cks.	W. & C. L. Ringrose
Arsenic—		
Hamburg,	100 cks.	Wilson, Sons, & Co., Ltd.
Asbestos—		
Flushing,	2 bls.	Brasch & Rothenstein
Barytes—		
Antwerp,	87 cks. 100 bgs.	Bailey & Leatham
Rotterdam,	24	Blundell, Spence, & Co.
Castor Oil—		
Marseilles,	28 cks.	
Cellulose—		
Hamburg,	71 bls.	
Chemicals (otherwise undescribed)		
Danzig,	15 cks.	
Dunkirk,	57 pkts.	Wilson, Sons, & Co., Ltd.
Antwerp,	19 cks.	"

Colours—		
Flushing,	1 ck. 29 pkts.	Wilson, Sons, & Co., Ltd.
Stettin,	18 cks.	
Rotterdam,	1 26 4 cs.	Hutchinson & Son
Trieste,	15 brls.	Wilson, Sons, & Co., Ltd.
Ghent,	9	
Antwerp,	71	Bailey & Leatham
"	1	Storry, Smithson, & Co.
Amsterdam,	3 cs.	W. & C. L. Ringrose
Bremen,	8 6	Veltmann & Co.
Rotterdam,	79 pkts.	Johnson Bros. W. & C. L. Ringrose
Flushing,	5 7 cs.	G. Lawson & Sons
"	11	Hutchinson & Son
Hamburg,	10	G. Malcolm & Son
Dyestuffs—		
Alizarine		
Rotterdam,	13 pkts. 1 ck. 1 cs.	Hutchinson & Son
"	119 22 cks.	W. & C. L. Ringrose
Madder		
Rotterdam,	2 cks.	W. & C. L. Ringrose
Sumac		
Palermo,	1,227 pkts.	
Farina—		
Stettin,	748 bgs.	Wilson, Sons, & Co., Ltd.
Harlingen,	300	
Glucose—		
Stettin,	500 bgs. 20 cks.	
New York,	250 brls.	
Kaolin—		
Rotterdam,	266 bgs.	Reckitt & Sons
"	20	Wilson, Sons, & Co., Ltd.
Manure—		
Ghent,	816 bgs.	Wilson, Sons, & Co., Ltd.
Naphthylamine—		
Rotterdam,	9 cks.	G. Lawson & Sons
Ochre—		
Marseilles,	66 cks.	Wilson, Sons, & Co., Ltd.
"	101	
Rouen,	40	Rawson & Robinson
Paint—		
Marseilles,	18 cs.	Wilson, Sons, & Co., Ltd.
New York,	15	
Phosphate—		
St. Valery,	75 t.	Hammond, Emes, & Co.
Pitch—		
Hamburg,	6 cks.	
Cronstadt,	106	
Plumbago—		
Genoa,	22 cks.	
Hamburg,	17	
Potash—		
Rotterdam,	10 cks.	G. Lawson & Sons
Antwerp,	40 dms.	Wilson, Sons, & Co., Ltd.
"	22 brls.	
Pumice Stone—		
Leghorn,	105 pkts. 66 cs.	Wilson, Sons, & Co., Ltd.
"	30 bgs. 15 cks.	
Pyrites—		
Huelva,	1,492 t.	J. Dalton Holmes, & Co.
Size—		
Rotterdam,	4 cs.	W. & C. L. Ringrose
Soap—		
Naples,	73 cs.	Wilson, Sons, & Co., Ltd.
Marseilles,	22	
"	11	
Bari,	10	
New York,	1	
Stearine—		
Drontheim,	2 cks.	Wilson, Sons, & Co., Ltd.
Antwerp,	129 bgs.	"
Sulphur—		
Catania,	1,853 pkts.	Wilson, Sons, & Co., Ltd.
"	455 175 t.	
Tallow—		
Bergen,	1 kg.	Wilson, Sons, & Co., Ltd.

Tartaric Acid—		
Rotterdam,	3 cks.	Hutchinson & Son
"	4	G. Lawson & Sons
Toluol—		
Rotterdam,	11 cks.	W. & C. L. Ringrose
Turpentine—		
Savannah,	5,207 brls.	
Ultramarine—		
Rotterdam,	7 cks.	Hutchinson & Son
"	1	W. Davis & Sons
Yarnish—		
New York,	26 brls.	Wilson, Sons, & Co., Ltd.
Antwerp,	1 cs.	"
"	5	
Verdigris—		
Marseilles,	1 ck.	Wilson, Sons, & Co., Ltd.
White Lead—		
Rotterdam,	49 cks.	Hutchinson & Son
Antwerp,	6	Bailey & Leatham
Rotterdam,	12	Johnson Bros.
Zinc Oxide—		
Rotterdam,	13 cks.	W. & C. L. Ringrose

GLASGOW.

Week ending July 6th.

Acetate of Lime—		
New York,	775 bgs.	
Alum—		
Hamburg,	98 cks.	
Barium Sulphate—		
Antwerp,	610 bgs.	
Barytes—		
Rotterdam,	12 brls. 24 cks.	J. Rankine & Son
"	48	
Bone Meal—		
Bombay,	1,439 bgs.	
Castor Oil—		
Marseilles,	248 cks. 59 pkgs.	
Antwerp,	28	
Chemicals (otherwise undescribed)		
Hamburg,	1 cs.	
Colours—		
Rotterdam,	4 cs. 7 cks.	J. Rankine & Son
Hamburg,	2	
Rotterdam,	29 pkgs.	
Cream of Tartar—		
Marseilles,	34 cks.	
Dyestuffs—		
Alizarine		
Rotterdam,	179 cks.	J. Rankine & Son
"	19	
Extracts		
Marseilles,	31 cks.	
Antwerp,	6	
Madder		
Marseilles,	10 cks.	
Farina—		
Delfzyl,	100 bls.	
Glucose—		
New York,	358 brls.	
Rotterdam,	12 cks.	J. Rankine & Son
Guano—		
Hammerfest,	634 sks.	J. T. Salvesen & Co.
Gypsum—		
Rouen,	600 t.	John Hyslop
Ochre—		
Marseilles,	198 cks.	
Paint—		
New York,	1 brl.	
Painters' Colours—		
Antwerp,	2 cks.	
Phosphate of Lime—		
Dunkirk,	500 bgs.	
Rosin—		
New York,	125 brls.	
Soap—		
Marseilles,	7 cs. 14 pkgs.	
Stearine—		
Antwerp,	63 bgs.	
Rotterdam,	15 cks.	J. Rankine & Son

Sulphur—		
Marseilles,	150 brls.	
Tallow—		
New York,	20 hhds. 25 tr	
Tar—		
Marseilles,	5 cks.	
Tartaric Acid—		
Marseilles,	8 cks.	
Yarnish—		
New York,	5 brls.	
Waste Salt—		
Hamburg,	1,008 bgs. 100 t.	
White Lead—		
Antwerp,	9 cks.	
Ghent,	7	
Zinc Ashes—		
Antwerp,	14 cks.	
Zinc Oxide—		
Rotterdam,	34 cks.	J. I.
Antwerp,	50	

TYNE.

Week ending July 1st.

Barytes—		
Rotterdam,	69 cks.	Tyne
Antwerp,	220 bgs.	
Cellulose—		
Rotterdam,	70 bls.	Tyne
Colours—		
Rotterdam,	8 cks.	Tyne
Antwerp,	2	
Cryolite—		
Copenhagen,	1 ck.	
Limestone—		
Antwerp,	2 cs.	
Phosphate—		
Antwerp,	350 t.	Langdale Ma
Sulphur—		
Pomaron,	899 t.	Mason
Ultramarine—		
Rotterdam,	1 ck.	Tyne
Hamburg,	1	
White Lead—		
Antwerp,	40 cks.	

GOOLE.

Week ending June 28th.

Alkali—		
Calais,	7 cks.	
Alum—		
Rotterdam,	16 brls.	
Caoutchouc—		
Boulogne,	4 cks. 1 cs.	
Dyestuffs (otherwise undescd)		
Ghent,	4 cks.	
Boulogne,	2 16 pkgs.	
Logwood—		
Campeche,	430 t.	
Potash—		
Calais,	18 dms.	
Dunkirk,	67	
Pyrites—		
Seville,	650 t.	
Sodium Nitrate—		
Rotterdam,	16 cks.	
Waste Salt—		
Hamburg,	500 bgs.	

GRIMSBY.

Week ending July 1st.

Caoutchouc—		
Antwerp,	1 cs.	
Rotterdam,	1 pkge.	
Hamburg,	27 bls.	
Chemicals (otherwise undescd)		
Hamburg,	10 cs. 7 cks.	
Rotterdam,	8	
Dyestuffs (otherwise undescd)		
Antwerp,	1 ck.	
Dieppe,	29	

EXPORTS OF CHEMICAL PRODUCTS OF THE PRINCIPAL PORTS OF THE UNITED KINGDOM.

LONDON.

Week ending July 5th.

Acids—		
Algoa Bay, 7 pkgs.	£34	
Hong Kong, 12 c.	25	
Alkali—		
Boston, 1 t. 3 c.	£11	
Gibraltar, 5	9	
Alum—		
Melbourne, 1 t.	£7	
Batoum, 10 2 c.	62	
Aluminous Cake—		
Bordeaux, 5 t. 1 c.	£30	
Ammonia (Liquid)—		
Brisbane, 10 drs.	£9	
Hamburg, 3 c.	15	
Cologne, 10 cylindrs. 8	60	
Ammonium Carbonate—		
Santos, 6 c.	£15	
Havre, 4 cks.	27	
Christiania, 1 t.	37	
Dunkirk, 18	25	
New York, 56	420	
Ammonium Chloride—		
Melbourne, 11 c.	£20	
Galatz, 6	10	
Bombay, 3 t. 15	125	
Batoum, 1 10	51	
Salonica, 2 6	70	
Auckland, 16 cks.	97	
Cape Town, 3	8	
Ammonium Sulphate—		
Canaria, 27 t.	£354	
Sourabaya, 172	2,214	
Bremerhaven, 60	780	
Barbadoes, 100	1,299	
Berbec, 9 18 c.	140	
Hamburg, 70 6	910	
Arsenic—		
Sydney, 1 t.	£15	
Boston, 306 cks.	750	
Melbourne, 1	16	
Amsterdam, 6	17	
Rotterdam, 1	18	
Bisulphite of Lime—		
Lytelton, 1 t. 16 c.	£8	
Boracic Acid—		
Brisbane, 1 t.	£39	
Melbourne, 4	151	
Lytelton, 1 10 c.	58	
Borax—		
Brisbane, 2 cks.	£16	
Melbourne, 4 t.	12	
Lytelton, 10 c.	15	
Sydney, 20 kgs.	30	
Carbolic Acid—		
Melbourne, 6 cks. 11 c.	£49	
Stockholm, 12 cks.	38	
Trinidad, 17	15	
Carbon Bisulphide—		
Antwerp, 7 t. 19 c.	£108	
Caustic Potash—		
Santos, 5 c.	£20	
Caustic Soda—		
Rio de Janeiro, 21 t. 4 c.	£250	
Melbourne, 7 8	139	
Wellington, 1 6	28	
Auckland, 5 4	53	
Algoa Bay, 2	17	
Natal, 19	22	
Zanzibar, 1 8	15	
E. London, 9	15	
Chemicals (otherwise undescribed)		
Bahia, 20 cs.	£9	
Melbourne, 2 28 pkgs.	65	
Beulogne, 2 c.	10	
Calcutta, 9	42	
Montreal, 29	61	
Halifax, 4	19	
Alexandria, 1 ck.	10	
Singapore, 20 drs.	15	
Algoa Bay, 13 20 kgs.	130	
Citric Acid—		
Hio, 1 cs.	£9	
St. Petersburg, 1 ck. 10 c. 10 kgs.	204	
Hamburg, 5 t. 1	3	
B. Ayres, 2	17	
Antwerp, 1	170	
Paris, 10	80	
Brussels, 10	80	
Havre, 2	17	

Genoa, 10	81	
Algoa Bay, 3 5	66	
Rotterdam, 10	83	
Delagoa Bay, 3 cs.	8	
E. London, 1	9	
Calcutta, 1	5	
Bombay, 2	14	
Coal Products—		
Alizarine		
Boston, 25 cks.	£347	
Lisbon, 3	58	
Aniline Dyes		
Sydney, 1 cs.	£39	
Benzol		
Rotterdam, 291 cks.	£957	
Hamburg, 18 drs.	180	
Boulogne, 97	520	
Cresosote		
M. Video, 1 cs.	£17	
Ghent, 23 210 glns.	212	
Naphthaline		
Philadelphia, 631 bgs.	£95	
Antwerp, 1 ck.	10	
Copenhagen, 12	19	
Pitch		
Galatz, 50 brls.	£14	
Philadelphia, 643 cks.	276	
Tar		
Colombo, 25 ms.	£26	
Sydney, 100 drs.	18	
Tar Oil		
Treport, 23 cks.	£15	
Toluol		
Hamburg, 50 cks.	£180	
Coal Products (otherwise undes.)		
Melbourne, 25 brls.	£24	
Hong Kong, 16	13	
Singapore, 25 drs.	20	
Hamburg, 1 bx.	31	
Copper Sulphate—		
Lisbon, 45 t.	£739	
Antwerp, 5 3 c.	85	
Oporto, 2	35	
Venice, 12 10	220	
Sydney, 3	51	
Bordeaux, 10	170	
Santos, 3	5	
Pt. Elizabeth, 20 kgs.	9	
Copperas—		
Gibraltar, 4 t. 6 c.	£14	
Cream of Tartar—		
Natal, 4 c.	£10	
Sydney, 20 kgs.	93	
Melbourne, 1 t.	78	
Disinfectants—		
Melbourne, 10 cs. 510 pkgs.	£322	
Paris, 10 cks.	50	
Pernambuco, 8	11	
Natal, 10 c.	18	
Trinidad, 11	21	
Flowers of Sulphur—		
Cape Town, 2 t. 5 c.	£24	
E. London, 2 14	30	
Manure—		
Salobrena, 145 t. 13 c.	£1,168	
Motril, 145 13	1,168	
Treport, 39 18	240	
Rouen, 35	280	
Jamaica, 5 3	55	
St. Kitts, 45 6	443	
Riga, 101 8	256	
Gothenburg, 115	325	
Limon, 14 13	128	
Trinidad, 15	160	
Oxalic Acid—		
Melbourne, 9 c.	£14	
Madras, 10	21	
Lisbon, 1 t.	28	
Potash—		
Lytelton, 2 t. 11 c.	£35	
Potash Crystals—		
Brussels, 5 c.	£40	
Toronto, 4	31	
Potassium Bicarbonate—		
New York, 10 cks.	£17	
Potassium Chlorate—		
Melbourne, 12 c.	£47	
Genoa, 2 cs.	14	
B. Ayres, 5	26	
New York, 10 t. 17	550	
Potassium Cyanide—		
Pt. Elizabeth, 30 cs.	£126	

Potassium Iodide—		
Algoa Bay, 1 cs.	£16	
Potassium Permanganate—		
Montreal, 4 cs.	£10	
Salt Cake—		
Ghent, 150 t.	£263	
Saltpetre—		
Brisbane, 1 t. 10 c.	£43	
Gibraltar, 12 10	250	
Rio de Janeiro, 2 15	61	
Bahia, 3 17	86	
Dunedin, 1	21	
Oporto, 3 15	75	
Vigo, 2 5	47	
Gothenburg, 10	9	
Freemantle, 10	11	
Sheep Dip—		
B. Ayres, 2,000 cs.	£6,000	
Melbourne, 100 drs.	100	
Calcutta, 115 pkgs.	65	
Cape Town, 3 t. 9 c.	50	
Pt. Elizabeth, 350	1,050	
E. London, 350	1,050	
Natal, 250	750	
Cape Town, 175	425	
Mossel Bay, 50	150	
Soda Ash—		
Pasages, 12 c.	£5	
Soda Crystals—		
Canterbury, 1 t. 10 c.	£11	
Demerara, 1 13	6	
Rio de Janeiro, 19	3	
Soda Salts—		
New York, 3 t.	£75	
Sodium Bicarbonate—		
Auckland, 1 t.	£8	
Canterbury, 1 10 c.	8	
Sodium Bisulphite—		
Lytelton, 1 t. 11 c.	£9	
Strontium Nitrate—		
New York, 2 t. 5 c. 60 pkgs.	£197	
Sulphur—		
Demerara, 3 c.	£10	
Sulphurous Anhydride—		
Batoum, 19 t. 18 c.	£428	
Sulphuric Acid—		
Colombo, 35 cs.	£35	
Santos, 3	6	
Singapore, 20	20	
Superphosphate—		
Libau, 200 t.	£600	
Mauritius, 148 14 c.	595	
Riga, 191 6	573	
Tartaric Acid—		
B. Ayres, 3 c.	£17	
Canterbury, 3 cs.	15	
Hamburg, 15	80	
Melbourne, 1 t.	102	
Sydney, 4	22	

LIVERPOOL.

Week ending July 5th.

Acetic Acid—		
Bombay, 1 c. 1 q.	£8	
Alum—		
Philadelphia, 2 t. 5 c.	£13	
Bahia, 1	6	
Smyrna, 2 10	15	
B. Ayres, 5 1	25	
Maranham, 1	6	
Catania, 1 1	5	
Montreal, 38 17	189	
Havana, 5 13 1 q.	19	
Corfu, 1	5	
Rio de Janeiro, 2 15	14	
Antwerp, 6 1 3	40	
Alum Cake—		
Calcutta, 5 t. 1 q.	£15	
Aluminoferrie—		
Montreal, 5 t. 9 c.	£16	
Ammonium Carbonate—		
Bilbao, 1 t. 10 c.	£45	
Montreal, 11	13	
Aalborg, 4	7	

Ammonium Chloride—		
Naples, 1 t. 2 c. 3 q.	£38	
Alexandria, 4	132	
Genoa, 1 10 1	49	
Smyrna, 1 2	37	
Valparaiso, 18	30	
Philadelphia, 13 1	298	
Beyrout, 1 12	51	
Galatz, 17 3	29	
Samsoun, 7	11	
Ammonium Sulphate—		
Alicante, 12 t. 3 c. 1 q.	£153	
Naples, 2	27	
Las Palmas, 30	293	
Sourabaya, 256 5 1	2,716	
Valencia, 96 17 3	1,350	
Arsenic—		
New York, 40 t.	3	£547
Asbestos—		
B. Ayres, 1 bl.		
Liquique, 2 cs.		
Barium Chlorate—		
Hamburg, 9 c.	£40	
Barium Sulphate—		
Lisbon, 2 t. 2 c.	£9	
Bleaching Powder—		
Baltimore, 435 cks.		
Boston, 471	51 cs.	
Calcutta, 51 cs.		
Genoa, 66		
Hamburg, 50		
Malaga, 14		
Naples, 57		
Oporto, 20		
Rouen, 30		
Bilbao, 40 kgs.	43 brls.	
Ghent, 259		
New Orleans, 80		
New York, 284		
Boracic Acid—		
Antwerp, 10 c. 1 q.	£22	
Havre, 1 t. 1 3	42	
Borate of Lime—		
Hamburg, 4 t.	£50	
Borax—		
Rouen, 14 c.	£25	
Constantinople, 11	15	
Havana, 4 1 q.	10	
Copiapo, 8	11	
Rotterdam, 1 t. 2	30	
Copenhagen, 2 2	62	
St. John's, N.B., 2 2	4	
Hamburg, 2 12	79	
Calcined Magnesia—		
New York, 144 cs.		
Carbolic Acid—		
Rotterdam, 2 c.	£7	
Rouen, 2 t. 16	83	
Copenhagen, 10	28	
Genoa, 2 2	131	
New Orleans, 6 8 2 q.	496	
Alexandria, 4 3	18	
New York, 7	380	
Santander, 19 2	70	
Hamburg, 21 15 1	1,211	
Castor Oil—		
Anamaboe, 4 cs.		
B. Ayres, 10 brls.		
Caustic Soda—		
Algoa Bay, 20 cs. 47 bxs.		
Baltimore, 184 dms. 270 brls.		
Bilbao, 20		
Bombay, 13		
B. Ayres, 100		
Calcutta, 121		
Callao, 20		
Catania, 20		
Galatz, 205 kgs.		
Genoa, 283		
Kobe, 100		
Madeira, 40		
Manilla, 150		
Mazatlan, 40		
Messina, 44		
Mexico, 734		
Odessa, 414		
Penang, 100		
Riga, 18		
Rosario, 1 cs.		
Rotterdam, 46		
Rouen, 35		
Samarang, 50		
Seville, 60		

Vera Cruz,	28	
Amsterdam,	2	
Aracajou,	10	
Bahia,	25	
Barcelona,	240	50 bxs.
Boston,	30	
Brisbane,	30	
Cadiz,	2	14 brls.
Cartagena, N.G.	4	
Fiume,	30	
Hamburg,	18	
Havana,	12	
Maracaibo,	10	
Montreal,	50	
New York,	599	150 brls. 15 bxs.
Pernambuco,	25	
Philadelphia,	60	50
Riga,	60	60 kgs.
Singapore,	4	
Sydney,	4	
China Clay—		
Bombay,	103 t.	
New York,	125	
Boston,	239	
Philadelphia,	55 cks.	
Chromate of Iron—		
Antwerp,	3 t.	£81
Chromium Trioxide—		
Hamburg,	3 q.	£6
Citric Acid—		
Corunna,	2 c.	£16
Marseilles,	4	31
Coal Products—		
Aniline Colours		
Genoa,	1 kg.	
Japan,	15 cs.	
Aniline Oil		
Barcelona,	5 dms.	
Genoa,	5	
Pitch		
Rouen,	1 ck.	
St. Johns, Nfd.,	100 brls.	
Tar		
Havana,	2 brls.	
Galatz,	10	
St. Johns, Nfd.,	50 hf.-brls.	
Copperas—		
Rio Janeiro,	10 c.	£1
Copper Sulphate—		
Constantinople,	1 t. 5 c.	£19
Rouen,	56 9	903
Malaga,	1 1 3 q.	18
Lisbon,	3 16 2	63
Naples,	24	385
Bordeaux,	27 3	435
Oporto,	12 13 2	197
Messina,	4 19 2	76
Fiume,	3 3 3	47
M. Video,	5 3 3	85
Genoa,	31 6 1	495
Cream of Tartar—		
Vera Cruz,	4 c.	£17
Cresylic Acid—		
Rouen,	1 t. 10 c.	£37
Disinfectants—		
St. Johns, Nfd.,	3 t.	£25
Bombay,	15 10	200
Dried Blood—		
Gr. Canary,	14 t. 7 c.	£134
Guano—		
Las Palmas,	6 t.	£18
Gypsum—		
New York,	35 t. 6 c.	£130
Iron Chloride—		
Bordeaux,	11 t. 10 c.	£42
Lime—		
Port Natal,	25 tks.	
Litharge—		
Seville,	10 brls.	
Magnesia—		
Corunna,	1 cs. 1 ck.	
Magnesium Chloride—		
Bombay,	4 t. 19 c.	£14
Magnesium Sulphate—		
Rouen,	88 bgs. 4 brls.	
Manure—		
Tenerife,	2 t. 4 c. 2 q.	£16
Santa Cruz,	26 2 3	255
Metallic Sodium—		
Rotterdam,	1 t. 7 c.	£313
New York,	1 19 3 q.	450
Oxalic Acid—		
Antwerp,	3 t. 1 c.	£84
San Francisco,	1 13 3	45

Paint—		
Barbadoes,	6 kgs.	
Cape Town,	13 dms.	
Genoa,	1 cks. 1 bx.	
Iquique,	10	
Limón,	28 kgs.	
M. Video,	9	4 cs.
San Francisco,		5 brls.
Santiago de Cuba,	1	
Savanna,	150	
Sierre Leone,	5	
Toronto,	19	
Amsterdam,	6	6 dms.
Antwerp,	12 brls.	
Cabedello,	25	
Constantinople,	6	
Hong Kong,	22	
Maranham,	3 cks.	
New Orleans,	35	
Palermo,	32	
Painters' Colours—		
Antofagasta,	50 kgs. 19 cks. 24 cs.	
Antwerp,	8	
Bilbao,	1	12 brls.
B. Ayres,	10	250 tins. 105 cs.
Calcutta,		10 cks.
Canca,	72 kgs.	
C. C. Castle,	12 pks. 2	26
Cape Town,	22 kgs. 2	26
Galatz,	50	
Havana, 5 brls.	30	
Magog,	12	
M. Video,	62	94 brls. 2
Para,		61 cks.
Porto Alegre,	12	
Rio de Janeiro,	30	30 dms. 19 brls.
Salaora,	4	
Bahia,	100	1 ck. 15
Maranham,	5	6
Parnahyba,	1 cs.	10
Pernambuco,		25
Sagua la Grande,	2	
Vera Cruz,	50 kgs.	
Paraffin Wax—		
Genoa,	20 cs.	
Leghorn,		20 bgs. 20 bls.
Naples,	5	
Venice,	70 10	
Phosphorus—		
M. Video,	5 cs.	£55
Picric Acid—		
Rangoon,	8 c.	£27
Plumbago—		
B. Ayres,	8 cks.	
Potashes—		
Rotterdam,	17 c. 1 q.	£22
Potassium Bichromate—		
Ghent,	16 c. 3 q.	£33
Wellington,	1 brl.	21
Potassium Chlorate—		
Riga,	1 t.	£56
Genoa,	1 1 c.	64
Rotterdam,	2 10	170
Hamburg,	10	34
Victoria,	4	15
Ghent,	6	16
Antwerp,	2	120
Boston,	5	327
Amsterdam,	8	24
Sydney,	5	304
Stockholm,	9	615
New York,	35	2,051
Naples,	3 15	220
B. Ayres,	3 15	204
St. Petersburg,	45	430
Yokohama,	12 10	718
Potassium Nitrate—		
Cartagena, Sp.,	4 t. 9 c.	£70
Salt—		
Algoa Bay,	5 t.	
Antwerp,	175 1 c.	
Bahia,	9	4
Calcutta,	6,768	
Cameroons,	50	
Canada,	200	
Cape Town,	8	19
Faroe Isles,	140	
Halifax,	600	
Iceland,	363	
Melbourne,	50	
M. Video,	20	17
Montreal,	955	
New York,	135	
Para,	992	17
Rotterdam,	320	
St. John's, N.F.,	10	
Sinec,	24	11 260 cks.
Sydney,	200	
Ambriz,	5	17
Anamboo,	9	7
Benin,	8	18
Bonny,	10	
Boston,	420	

Cavally,	10	15
Ceara,	100	
Natal,	107	7
Rio de Janeiro,		50 cs.
Rouen,	20	
Salt Pond,	25	
Santa Catherina,	15	
Sherbro,	50	
Valparaiso,	2	3
Wilmington,	25	
Saltcake—		
Bilbao,	100 t. 4 c.	£167
Saltpetre—		
Barcelona,	3 t. 15 c.	£75
Santa Catherina,	2 10	53
Callao,	1 6 3 q.	30
Para,	10	13
Maranham,	6 3	8
Sheep Dip—		
Punta Arenas,	8 t. 10 c. 100 cs.	£409
Soap—		
Accra,	50 bxs.	
Addah,	50	
Alexandria,		58 cs.
Algoa Bay,	500	
Amboina,	1,500	
Anatto Bay,	30	
Bombay,	345	2
B. Ayres,		2
Calcutta,	32	4 cks.
C. C. Castle,	5	
Corfu,	5	
E. London,	10	3 bdls.
Gibraltar,	200	
Gr. Cayman,	20	
Havre,	300	
Hong Kong,	30	
Kingston, J.,	2,250	
Malta,	30	
Montego Bay,	100	
Morant,	60	
Penang,	5	
Pernambuco,	1	
Port Natal,	335	
Quebec,	1	
S. John's, Nfd.,	260	
S. Thomas, W.I.,	440	
Shanghai,	3,351	
Singapore,	3,000	
Trinidad,	700	
Aden,	300	
Amsterdam,	421	
Bangkok,	3	
Barbadoes,	250	
Boston,		10 f'kns.
Brussels,	400	
Cairo,	30	
Elmina,	6	
Genoa,	16	
Larnaca,	500	
Macassar,	270	5
Madras,	45	6
Mauritius,		110 pkgs.
Naples,		
New York,		
Rangoon,	270	
Rotterdam,	263	
San Fernando,	300	
Sourabaya,	1	
Soda Alkali—		
Genoa,	69 brls.	
Leghorn,	40	
Soda Ash—		
Bahia,	10 brls.	
Baltimore,	239 cks. 640 bgs.	
Barcelona,	25	
Brisbane,	97	
B. Ayres,	50 23	
Calcutta,	75	25 kgs.
Genoa,	10	80
Maranham,	36	
New York,		1,000
Philadelphia,	130	400
Rio de Janeiro,	410	
Valparaiso,		10
Adelaide,	104	
Boston,	61	200
Constantinople,	20	
Kobe,	199	
Madeira,	4	
Porto Alegre,	50	
San Francisco,	29	
Trinidad,	12	
Valencia,	9	
Soda Crystals—		
Baltimore,	280 cks.	
Boston,	667 brls.	
Calcutta,		70 kgs.
New York,	140	
Philadelphia,	25	
Wellington, N.Z.,	1	
Adelaide,	8	
Amsterdam,	50	
Batavia,	55	

Brantford,	50	
B. Ayres,	50	25
St. John's, Nfd.,		50
Valparaiso,	100 bgs.	
Sodium Arseniate—		
Boston,	13 cks.	
New York,	20	
Sodium Borate—		
Antwerp,	32 cks.	
Sodium Bicarbonate—		
Bombay,	635 kgs.	
B. Ayres,		50 cks.
Calcutta,	740	8
Cartagena, Sp.,		30
Constantinople,	20	
Dunedin,	80	
Genoa,	30	
Havre,	100	
Hioo,	500	
Kurrachee,	20	
London, Ont.,	75	10
Malta, 10 bgs.	7	
Montego Bay,	50	4
Naples,	50	4
New York,		100
Rosario,		12
Vera Cruz,		10 b
Adelaide,	125	
Alicante,	100	
Antwerp,		9
Barcelona,	300	
Montreal,	75	
Rio de Janeiro,		2
Sodium Bichromate—		
Ghent,	17 cks.	
Sodium Borate—		
B. Ayres,	10 cks.	
Sodium Chlorate		
Antwerp,	35 kgs.	
Ghent,	8	
Hamburg,	35	
Rotterdam,	40	
St. Petersburg,	120	
Sodium Peroxide—		
Bombay,	c.	
Sodium Silicate—		
Cartagena, Sp.	10 brls.	
Sodium Sulphate		
Caldera,	10 bxs.	
Sodium Tartrate—		
Havana,	brls.	
Spent Oxide—		
Antwerp,	337 t. 2 c.	£4
Sulphur—		
Barbadoes,	10 t. 1 c.	1
Boston,	200	8
Quebec,	10	1
Calcutta,	5 19	1 q.
Kurrachee,	2 2	3
Callao,	2	
Tartaric Acid—		
Callao,	4 cs.	1
Turpentine—		
Penang,	10 dms.	
Varnish—		
Barbadoes,	1 cs. 1 brl.	
Bilbao,		6
Canca,	1	
Callao,	1	
Cavite,	8	
Huelva,	4	
White Lead—		
Cabedello,	20 kgs.	
Santander,	8 cks.	
Zinc Chloride—		
Bombay,	2 t. 12 c. 1 q.	
Bordeaux,	16 3	

HULL.

Week ending July 1st.

Alkali—		
Harlingen,	10 cks.	
Ammonium Sulphate—		
Hamburg,	171 bgs.	
Rotterdam,	753	
Stettin,	210	
Benzol—		
Hamburg,	8 dms.	
Bleaching Powder—		
Boston,	60 cks.	
New York,	81	
Riga,	20	
Borax—		
Christiania,	1 cs.	

Caustic Soda—

Antwerp,	1 cs.
Abo,	3 cks.
Flushing,	37 dms.
Harlingen,	18 cs.
Helsingfors,	25
Koenigsberg,	35 dms.
Riga,	200 cs.

Chemicals (otherwise undescribed)

Antwerp,	4 cs. 8 cks.
Amsterdam,	16 pkgs. 450 kgs.
Abo,	3 cks.
Bergen,	7 70 pkgs.
Copenhagen,	6 50 8 cs.
Christiania,	2 5
Dunkirk,	69
Flushing,	1 12 5
Gothenburg,	27 35 cs. 21 pkgs.
Hamburg,	21 28
Helsingfors,	17
Jersey,	13
New York,	31 20
Rotterdam,	29 20
Riga,	4 30 pkgs.
St. Petersburg,	6
Stettin,	6
Wyborg,	1 pkge.

Cottonseed Oil—

Antwerp,	40 cwt.
Copenhagen,	101
Drontheim,	50
Flushing,	200
Hamburg,	504
Rotterdam,	1,208
Stettin,	38

Cresosote—

Amsterdam,	16 cks.
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Dyestuffs (otherwise undescribed)

Amsterdam,	2 cks.
Flushing,	1
Rotterdam,	5

Linseed Oil—

Amsterdam,	205 cwt.
Bergen,	218
Bordeaux,	35
Copenhagen,	10
Christiania,	671
Christiansand,	37
Drontheim,	173
Hamburg,	139
Hango,	124
Helsingfors,	240
New York,	170
Rotterdam,	41
Savanger,	65
Wyborg,	20

Mineral White—

Amsterdam,	300 bls.
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Ochre—

Hamburg,	4 cks.
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Paint—

Helsingfors,	20 cs.
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Painters' Colours—

Antwerp,	48 cks. 94 pkgs.
Amsterdam,	2
Bergen,	4 1 cs. 114 pkgs.
Bremen,	1
Boston,	80
Bordeaux,	19
Copenhagen,	1
Christiania,	30
Dunkirk,	11
Ghent,	3
Hamburg,	27 1 2 dms.
New York,	561
Rotterdam,	8 2 25 pkgs.
Riga,	17 1
Rouen,	5
St. Petersburg,	204
Savanger,	32 cks. 12 dms.
Stettin,	123

Pitch—

Antwerp,	454 t.
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Soap—

Gothenburg,	2 cs.
Hamburg,	1 ck.
Jersey,	12 cs.

Superphosphate—

Kastrop,	185 t.
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Tallow—

Gothenburg,	5 cks.
Helsingfors,	6

Tar—

Antwerp,	1 ck. 54 t.
Amsterdam,	205
Christiania,	10
Drontheim,	5
Hamburg,	15
Helsingfors,	130
Rotterdam,	6

Turpentine—

Bergen,	170 cks.
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Varnish—

Antwerp,	3 cs. 3 cks. 1 bl.
Amsterdam,	1
Copenhagen,	4
Hamburg,	2 7
Rotterdam,	1 3

GLASGOW.

Week ending July 6th.

Ammonium Sulphate—

Jamaica,	15 t.	£183
Valencia,	406 5½ c.	5,298

Barium Chloride—

Montreal,	2 t. 12½ c.	£20
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Bleaching Powder—

Melbourne,	6 t. 1½ c.	£55
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Borax—

Rotterdam,	1 t. 2 c.	£30
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Coal Products—

Pitch		
St. John's, N.F.,	14 t. 4 c.	£30
Philadelphia,	13 3	20
Bombay,	9 ½	20
Calcutta,		70
Havre,	247 13	173
New York,	229 16	371
Quebec,	73 8½	116
Gothenburg,	72 17½	175
Tar		
Bombay,	22 t. 14½ c.	£64
Boston, U.S.A.,	36 15	75
Calcutta,		212
Gothenburg,	12 10	21
Danzig,		2,204 brls. 720
New York,	22 13	46
Madras,		63
Tar Oil		
Rouen,	11 t. 16 c.	£210

Coal Tar Products (otherwise undescribed)—

Rotterdam,	6 dms.	£55
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Colours—

Natal,	1 t. 10 c.	£38
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Dried Blood—

Rouen,	67 t. 3 c.	£600
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Dyestuffs—

Extracts		
Montreal,	4 t. 12 c.	£129
Quebec,	3 7½	151
Fustic Extract		
Montreal,	2 t. 5½ c.	£90
Logwood		
Montreal,	35 t. ¾ c.	£248
Quebec,	10 9½	160
Valencia,	9 6	97
Melbourne,	17 14½	187
Sumac Extract		
Valencia,	2 t. 10½ c.	£31

Lead Acetate—

Montreal,	19½ c.	£23
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Linseed Oil—

Cape Colony,	3 t. 17 c.	£93
Colombo,	1 5½	30
Quebec,	13 11½	231
Melbourne,	2 7½	54

Litharge—

Montreal,	8 t. 18½ c.	£120
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Magnesium Sulphate—

Melbourne,	10 t.	£42 18s.
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Manganese—

Rotterdam,	1 t. 15 c.	£17
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Manganese Oxide—

Philadelphia,	5 t. 5 c.	£50
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Manure—

Jamaica,	5 t.	£60
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Nitrate of Lead—

Montreal,	5 t. 7½ c.	£91
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Paint—

Colombo,		£132
Calcutta,		220
Halifax, N.S.,	1 t. 12½ c.	26
New York,	8 14½	179
Quebec,		24
Melbourne,	2 12½	65

Painters' Colours—

Calcutta,		£119
Cape Colony,		318

Paraffin Wax—

Cape Colony,	15 t. 15 c.	£322
Rouen,	2 6½	70

Potassium Bichromate—

Antwerp,	6 t. 8½ c.	£218
Rouen,	36 2½	1,302
Valencia,	10 15½	429

Potassium Prussiate—

Rouen,	5 t. 7 c.	£321
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Soap—

New York,	1 t. 17 c.	£40
Cape Colony,	3 5½	100
Antigua,	1 5	25

Soda Ash—

Melbourne,	1 t. ½ c.	£140
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Sodium Bichromate—

Rouen,	20 t. 1½ c.	£655
Valencia,	7 5½	238

Turpentine—

Bombay,	1 t. 6 c.	£25 11s.
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White Lead—

St. John's, N.F.,	2 t. 1 c.	£22
Cape Colony,	6 18½	135
Natal,	6 5	136
Montreal,	10 2½	180

TYNE.

Week ending July 1st.

Alkali—

Riga,	5 t. 8 c.	
Antwerp,	10 17	
Hamburg,		12
Christiania,	60 3	
Aarhus,	5 10	
Seville,	3 7	
New York,	97 2	

Alum—

Seville,	17 c.	
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Alumina Hydrate—

Antwerp,	2 t. 10 c.	
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Ammonia Salts—

St. Petersburg,	19 t. 1 c.	
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Ammonium Chloride—

St. Petersburg,	13 t. 3 c.	
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Ammonium Sulphate—

Hamburg,	70 t. 8 c.	
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Antimony—

Rotterdam,	1 t.	
Hamburg,	3	
New York,	30	

Barytes—

Hamburg,	112 t. 19 c.	
New York,	11 17	

Blanc Fixe—

Rotterdam,	1 t. 11 c.	
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Bleaching Powder—

Riga,	40 t. 1 c.	
St. Petersburg,	211 1	
Gothenburg,	9 18	
Antwerp,	29 11	
Hamburg,	9 17	
Christiania,	2 13	
Rotterdam,	19 19	
Drontheim,	10 2	
Abo,	8 16	
Kotka,	90 6	
Copenhagen,	30 18	

Borax—

Ergasteria,	14 c.	
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Caustic Soda—

Riga,	15 t. 1 c.	
St. Petersburg,	180 1	
Gothenburg,	12 3	
Hamburg,	32 4	
Christiania,	1	
Constantinople,	5	
Odessa,	33 15	
Salonica,	9 19	
Seville,	87 8	
Wyborg,	1 1	
Abo,	16 12	
Helsingfors,	9	
Kotka,	23 15	

Copperas—

Aarhus,	1 t. 10 c.	
Abo,	13	

Litharge—

Gothenburg,	1 t. 1 c.	
Hamburg,	2	
Christiania,	5 1	
Copenhagen,	5	

Magnesia—

Hamburg,	2 c.
Constantinople,	3
Smyrna,	5
Copenhagen,	2
New York,	1 t. 6

Naphthalene—

Riga,	25 t. 6 c.
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Paint—

Rotterdam,	15 c.
Antwerp,	3
Hamburg,	4 t. 10
Christiania,	7
Bergen,	13
New York,	3

Salt—

Hamburg,	28 lbs.
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Soda—

Antwerp,	9 t. 18 c.
Christiania,	20 3
Rotterdam,	6 16
Aarhus,	16 11
Abo,	3 11
Kotka,	6 9
Drontheim,	50
Varde,	1 2
New York,	107 16
Svendborg,	15

Soda Ash—

Riga,	15 t. 4 c.
Konigsberg,	50 1
Christiania,	6 15
Abo,	33 15
Kotka,	173 8

Sodium Hyposulphite—

Antwerp,	10 t.
Kotka,	2 6 c.

Sodium Sulphate—

Gothenburg,	265 t.
Abo,	11 c.
Kotka,	30 3

Sulphur—

Riga,	80 t.
Gothenburg,	45
Antwerp,	5
Christiania,	50
Ronneby,	215
Drontheim,	50

Superphosphate—

PRICES CURRENT.

WEDNESDAY, JULY 12th, 1893.

PREPARED BY MESSRS. HIGGINBOTTOM AND CO., 116, PORTLAND STREET, MANCHESTER.

The values stated are F.O.R. at maker's works, or at usual ports of shipment in U.K. The price in different localities may vary.

Acids:—

Acetic, 25 % and 40 %	per cwt	7/- & 10/6
„ Glacial	„	50/-
Arsenic S.G., 2000°	„	0 14 6
Fluoric	per lb.	0 0 3½
Muriatic (Tower Salts), 30° Tw.	per bottle	0 0 10
„ (Cylinder), 30° Tw.	„	0 3 0
Nitric 80° Tw.	per lb.	0 0 1½
Nitrous	„	0 0 1½
Oxalic	nett	0 0 3
Phosphoric, 1750°	„	0 1 2½
Picric	„	0 1 0
Sulphuric (fuming 50 %)	per ton	15 10 0
„ (monohydrate)	„	5 10 0
„ (Pyrites, 168°)	„	3 0 0
„ „ 150°	„	1 5 0
„ (free from arsenic, 145°)	„	1 6 0
Sulphurous (solution) S.G. 1025	„	3 0 0
Tannic (pure)	per lb.	0 1 2
Tartaric	„	0 0 11½
Arsenic, white powdered	nett per ton	13 12 6
Alum (loose lump)	„	5 2 6
Alumina Sulphate (pure)	„	5 0 0
Aluminoferic	„	2 10 0
Aluminium	per lb.	0 4 0
Ammonia, Anhydrous	„	0 1 2
„ 880=28°	per lb.	0 0 2½
„ =24°	„	0 0 2
„ Carbonate	nett	0 0 3½
„ Muriate	per ton	21 10 0
„ (sal-ammoniac) 1st & 2nd	per cwt.	37/- & 35/-
„ Nitrate	per ton	42 0 0
„ Phosphate	per lb.	0 0 10½
„ Sulphate (grey) London	per ton	13 5 0
„ (grey) Hull	„	13 5 0
Aniline Oil (pure)	per lb.	0 0 6½
Aniline Salt	„	0 0 5½
Antimony	per ton	45 10 0
„ (tartar emetic)	per lb.	0 1 0
„ (golden sulphide)	„	0 0 10
Barium Chloride	per ton	7 10 0
„ Carbonate (native)	„	3 10 0
„ Sulphate (native levigated)	„	45/- to 75/-
Bleaching Powder, 35 %	nett	8 0 0
„ Liquor, 7 %	„	3 10 0
Bisulphide of Carbon	„	11 15 0
Chromium Acetate (crystal)	per lb.	0 0 6
Calcium Chloride	per ton	2 5 0
China Clay (at Runcorn) in bulk	„	17/6 to 35/-

Coal Tar Products and Dyes:—

Alizarine (artificial) 20 %	net per lb.	0 0 8
Magenta	„	0 3 9
Anthracene, 30 % A, f.o.b. London	per unit per cwt.	0 1 2
Benzol, 90 % nominal	per gallon	0 1 4½
„ 50/90	„	0 1 4
Carbolic Acid (crystallised 40°)	per lb.	0 0 7½
„ (crude 60°)	per gallon	0 1 10
Creosote (ordinary)	„	0 0 1
„ (filtered for Lucigen light)	„	0 0 1½
Crude Naphtha 30 % @ 120° C.	„	0 0 7
Grease Oils, 22° Tw.	per ton	2 5 0
Pitch, f.o.b. Liverpool or Garston	„	1 5 0
Solvent Naphtha, 90 % at 160°	per gallon	0 0 11
„ Lucigen and „ Wells Oils	„	0 0 1½
Copper	per ton	42 15 0
„ Sulphate	„	16 0 0
„ Oxide (copper scales)	„	42 0 0
Glycerine (crude)	„	13 0 0
„ (distilled S.G. 1250°)	„	43 0 0
Iodine	nett, per oz.	0 0 9
Iron Sulphate (copperas)	per ton	1 12 6
„ Sulphide (antimony slag)	„	2 0 0
Lead (sheet) for cash	„	11 10 0
„ Litharge Flake (ex ship)	„	13 0 0
„ Acetate (white „)	„	25 15 0
„ „ brown „)	„	17 10 0
„ Carbonate (white lead) pure	„	20 0 0
„ Nitrate	„	20 0 0

Lime, Acetate (brown)	per ton	5 17 6
„ „ (grey)	„	10 15 0
Magnesium (ribbon and wire)	per oz.	0 2 3
„ Chloride (ex ship)	per ton	2 7 6
„ Carbonate	per cwt.	1 17 6
„ Hydrate	per ton	17 0 0
„ Sulphate (Epsom Salts)	per ton	2 19 0
Manganese, Sulphate	„	17 15 0
„ Borate	per cwt.	2 12 6
„ Ore, 70 %	per ton	4 5 0
Methylated Spirit, 61° O.P.	per gallon	0 2 0
Naphtha (Wood), Solvent	„	0 3 6
„ Miscible, 60° O.P.	„	0 4 0

Oils:—		
Cotton-seed	per ton	24 0 0
Linseed	„	22 10 0
Lubricating, Scotch, 890°—895°	„	7 5 0
Petroleum, Russian	per gallon	0 0 4
„ American	„	0 0 5½
Potassium (metal)	per oz.	0 3 7
„ Bichromate	per lb.	0 0 4½
„ Carbonate, 90% (ex ship)	per ton	16 15 0
„ Chlorate	per lb.	0 0 8½
„ Cyanide, 98%	„	0 2 0
„ Hydrate (Caustic Potash) 80/85 %	per ton	21 10 0
„ „ (Caustic Potash) 75/80 %	„	20 10 0
„ „ (Caustic Potash) 70/75 %	„	20 0 0
„ Nitrate (refined)	per cwt.	1 2 6
„ Permanganate	per cwt.	3 5 0
„ Prussiate Yellow	per lb.	0 0 9½
„ Sulphate, 90 % (ex ship)	per ton	9 15 0
„ Muriate, 80 % (do.)	„	8 0 0
Silver (metal)	per oz.	0 2 9
„ Nitrate	„	0 2 10
Sodium (metal)	per lb.	0 3 4
„ Carb. (refined Soda-ash) 48 %	nett per ton	5 17 6
„ „ (Caustic Soda-ash) 48 %	„	4 15 0
„ „ (Carb. Soda-ash) 48 %	„	4 15 0
„ „ (Carb. Soda-ash) 58 %	„	4 10 0
„ „ (Soda Crystals)	„	2 17 6
„ Acetate (ex-ship)	„	16 10 0
„ Arseniate, 45 %	„	12 0 0
„ Chlorate	per lb.	0 0 9
„ Borate (Borax)	net, per ton	29 0 0
„ Bichromate	per lb.	0 0 3½
„ Hydrate (77 % Caustic Soda) (f.o.b.) net pr. ton	10 ton lots	11 0 0
„ „ (74 % Caustic Soda) „ „ „	„	10 10 0
„ „ (70 % Caustic Soda) „ „ „	„	9 10 0
„ „ (60 % Caustic Soda) „ „ „	„	8 10 0
„ „ (60 % Caustic Soda, cream) (f.o.b.) „ „	„	8 5 0
„ Bicarbonate	„	6 10 0
„ Hyposulphite	„	6 10 0
„ Manganate, 30%	„	16 0 0
„ Nitrate (95 %) ex-ship Liverpool	per cwt.	0 10 0
„ Nitrite, 98 %	per ton	27 10 0
„ Phosphate	„	15 0 0
„ Prussiate	per lb.	0 0 7½
„ Silicate (glass)	per ton	5 7 6
„ „ (liquid, 100° Tw.)	„	4 5 0
„ Stannate, 40 %	per cwt.	3 0 0
„ Sulphate (Salt-cake)	per ton	1 4 0
„ „ (Glauber's Salts)	„	1 10 0
„ Sulphide	„	8 10 0
„ Sulphite	„	6 5 0
Strontium Hydrate, 100%	„	8 10 0
Sulphocyanide Ammonium, 95 %	per lb.	0 0 7½
„ Barium, 95 %	„	0 0 5
„ Potassium	„	0 0 7½
Sulphur (Flowers)	per ton	8 0 0
„ (Roll Brimstone)	„	6 10 0
„ Brimstone: Best Quality	„	4 2 6
Superphosphate of Lime (26 %)	„	2 7 6
Tallow	„	27 10 0
Tin (English Ingots)	„	87 0 0
„ Crystals	per lb.	0 0 6½
Zinc (Spelter)	per ton	17 15 0
„ Chloride (solution, 96° Tw.)	„	5 15 0

THE CHEMICAL TRADE JOURNAL

AND
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22.

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Notices.

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Subscribers are invited to forward items of intelligence, or cuttings from newspapers, of interest to the trades concerned.

Reports, and correspondence on all matters of interest to the allied industries, home and foreign, are solicited, and should condense their matter as much as possible, giving only the facts, and in all cases give their names and addresses, not necessarily for publication. Sketches should be sent on separate sheets.

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Advertisements intended for insertion in the current week's issue should reach the office by **Wednesday morning** at the latest.

A NECESSARY CORRECTION.

ONE of the most glaring inaccuracies it has ever fallen to our lot to criticise appeared last week in the *Paper Trade Review*, and as our attention has been drawn to it by several of our correspondents, it may be as well to reproduce it verbatim:—

Developments in regard to electrolytic bleaching processes have been steadily proceeded with. Within a few days the Greenwood Electrolytic Alkali Company, Limited, with a nominal capital of £150,000., may possibly be before the public. Most of our readers are familiar with Mr. Greenwood's process which is controlled by the Caustic Soda and Chlorine Syndicate, Limited. The difficulties of the past are said to have been overcome, the inventor having introduced a patent diaphragm and a patent compound anode, which, together with a continuous and automatic system of working, have won the high opinion of experts of repute. We understand the price fixed to be paid for the British patents is £60,000., payable £5,000. in cash, and £20,000. in deferred shares, and £35,000. in preference shares. It is estimated that the cost of producing 20 tons of bleaching powder and eight tons of caustic soda per day of 24 hours is £95. 3s. Compared with the present market value, a nett profit is shown of £155. 17s. per day. The cost of a complete installation of 200-h.p., suitable for the output mentioned above, is said to be £46,000.

Statements such as these are very serious matters for the investing public; we will, therefore, put the actual state of affairs before our readers, in order that they at least may not be misled.

Twenty tons of bleaching powder per day of 24 hours would mean a production of not less than eight tons of chlorine—substantially 8,000 kilos. per 24 hours, or 333 kilos. per hour. We could, however, be more inclined to place the figure at 350 kilos. as the number required in actual practice. Retaining, however, the former figure, and including the least resistance in circuit likely to be met with in practice, even when the apparatus is new, sound, and clean, we find at 6.5 H.P. per kilo. of chlorine per hour, a total driving power of 2,164 H.P. would be required to do the work theoretically—that is to produce twenty tons of bleaching powder per day of 24 hours.

But in our opinion, in actual practice, a far greater proportion of power would be necessary. We have the notes of a trial in which 675 amperes, running at a pressure of 5½ volts through a salt solution of 30° Tw., produced but 750 grms. of chlorine, but this favourable experience did not maintain its constancy the longer the dynamo was run, and there is the duplication of apparatus to be taken into account, as repairs are likely to be frequent.

There is, however, another way of looking at the problem. No one has shown hitherto that the whole of the salt employed in the cathode cell can be split up; in fact, chlorates commence to be formed and enter the cathode solution before even one-third of the salt has been decomposed, moreover the anode solution becomes strongly acid with hypochlorous and chloric acids, and in this way the

carbon is quickly disintegrated. Leaving, however, the carbon to take care of itself, and even the anode solution may be left out of the question, seeing that a continuous strengthening with salt may possibly keep it active, the same cannot be said of the cathode solution. This solution contains a mixture of three or four parts of salt, with about one part of caustic soda. We know from many experiments that have come to our knowledge that this solution is the *crux* of the electro-experimentalist; we have not the slightest doubt but that solid caustic soda could be prepared from this solution; but at what cost? The cost of evaporation, and fishing such a large quantity of salt from a comparatively weak caustic solution will only be properly appreciated by those to whom the ordinary method of making caustic soda is familiar.

We are strongly of opinion that the time is approaching when bleaching powder will be made by electrolysis, but we are also of opinion that when it is produced, the cost of production will be found far in excess of anything that has been calculated upon, and that a very considerable period will elapse before it is produced as cheaply and as easily as it now can be by the Deacon and the Weldon processes.

We have said more than it was our intention to when first taking up our pen, our sole intention having been to set forth in plain figures the horse-power required to make a definite weight of bleach in opposition to the figures given in our contemporary; but we have done more than this, and hope the figures will be interesting to those who are following with a keen eye this branch of industry.

THE TRADE JOURNAL.

IN addressing the Trade Journal division of the World's Congress at Chicago, Mr. D. H. Mason referred to trade organs. He emphasised the decline of the daily press as a teacher of the people, instancing the constant blunders in reports of scientific and industrial concern. On the contrary, the trade journal, by limiting itself to a special field of inquiry; by getting rid of precipitate haste, in virtue of its weekly or less frequent appearance; and by having its success pivoted on utility, is secured against these gross defects. Published to serve a class of patrons whose business interests, thoughts, and exertions are contained within the boundaries to which the journal is restricted, it must depend for thrift upon the accuracy, thoroughness, and practical value of the information supplied to its subscribers and readers, for these themselves are more or less educated and experienced in the matters in which they expect to be further taught, and thus are competent judges of the merits and short-comings in what is submitted week after week for their instruction. They will see faults and errors where the mass of observers would see nothing to condemn. Knowledge, training, research, patience, exactitude, and utility, become, therefore, the faithful sentinels which stand guard over the preparation of the contents.

As an advertising medium, again there are wide differences between the trade journal and the newspaper, giving certain advantages to the former. The trade journal, on account of its special field of service, sometimes furnishes a direct approach to capable purchasers, nearly everyone of whom may need the article advertised, an appeal far more effective than any which can be made to an indiscriminate mass of readers such as are represented by a daily newspaper.

The trade journal, particularly of the highest grade, often obtains a reputation as an advertising medium so peculiarly its own that outside parties get into the habit of resorting to its pages, in order to keep posted about the introduction of new things, or to ascertain if there is any recent improvement which could be used with advantage in their business. No daily print could be depended on to supply that sort of information.

The journal is not ephemeral like the general newspaper, which is rarely preserved beyond the date of its issue, and which is difficult to find twenty-four hours afterwards, in the offices or dwellings of its patrons. Indeed, the trade journal is filed for further reference by many of its subscribers with as much care and regularity as a receipted bill; and, hence an advertisement which, in any general newspaper, would have ceased to do service, may attract attention again, at some accidental moment and become the adventitious means of an order.

The trade journal usually contains elaborate, accurate, useful market reports, regularly and scrupulously corrected, and brought down to date, giving prices and other information relative to the business of the special trade, or group of trades, represented by the publication. These market reports are not to be found in any general newspaper, and their presence in the trade journal causes it to be so much consulted and scanned as to be incidentally quite beneficial to the advertisers.

THE EXTRACTION OF FAT FROM FEEDING CAKES.

By DR. L. GEBEK.

IT is generally known that the usual method of extracting the fat from fodders by means of anhydrous ether, after a preliminary drying for three hours, is not in any way perfect. Even when low boiling petroleum, which is perhaps the most suitable solvent for fat, is used, the extract always contains colouring matters, resins, waxy impurities, and other similar substances in solution. It has hitherto been found impossible to separate these from the fat in any simple manner. Moreover, the previous drying of the substance at a fixed temperature, and in the case of linseed meal in a current of hydrogen or coal gas, and the preparation of perfectly anhydrous ether, are very troublesome operations, and require a great expenditure of time.

In order to avoid these difficulties, I mixed the substance to be extracted with burnt gypsum, and also passed the ethereal solution through a gypsum filter. Filter papers cannot be used for this purpose since they allow the liquid to pass down at the sides; I employed the ordinary extraction tubes, which are drawn out at one end and plugged with a piece of cotton wool. Above this a layer of powdered gypsum was placed (4-5 cm.), and then the substance mixed with an equal amount of gypsum. Since finely powdered gypsum is liable to become impervious during use, I made use of a granular material, which was obtained by powdering up plaster figures, igniting in a platinum basin and passing through a 2 m.m. sieve. The substance to be extracted was air dried, and ordinary ether was used. After many experiments with different kinds of cotton-seed meal, I found that the amount of extract obtained in this way was smaller and less coloured than that obtained in the usual manner, no colouration at all being visible in some cases. The iodine number when gypsum was used was higher.

Generally, it appeared to be a matter of indifference whether the ether was anhydrous or not, whereas, on the other hand, previously drying the substance in the air rendered the amount of extract perceptibly smaller. The fat in the material was probably altered by the drying, and was hence to some extent held back by the gypsum although still completely soluble in ether.

The results of separate experiments with the same material and under the same conditions were sometimes different from one another. This was probably due to differences in the density of the layer of gypsum, the rapidity of the extraction at the commencement or some other undetermined circumstance. The diminution of the extract often amounted to 10 per cent. of the whole quantity.

Linseed meal was also tried with very similar results. A purer extract was obtained, but the separate experiments did not agree with one another, and I, therefore, decided not to try any other fodders in this manner.

I will only add that a dried mass of spent grain which, when air-dried and extracted with anhydrous ether, gave 9-12 per cent. of fat, only yielded 6 per cent. when extracted in the presence of gypsum. The same number was obtained when the same sample of material was dried for three hours at 100°C. and then extracted with ether free from alcohol and water.

The application of animal charcoal to fat extraction also proved unsuitable. The extracts were nearly always almost colourless and much less in weight than by the usual method, but differed largely from one another. In any case animal charcoal has not only the property of precipitating resins and colouring matters, but of absorbing free fatty acids, which are always present in larger or smaller amount in fodders. Animal charcoal and gypsum, therefore, both gave unsatisfactory results.

If, however, instead of these substances, the Spanish earth, often used for the clarification of wine, be employed, the extractions proceed very satisfactorily. It is essential to previously remove the carbonates (especially the carbonate of calcium) which are apt to be present. For this purpose the fine powder was mixed with water, sufficient sulphuric acid added and the whole mass evaporated to dryness on the water bath, and ignited. After the ignition the material was powdered and passed through a 2 mm. sieve, and in this condition used for the extraction. The general arrangement was similar to that employed in the previous experiments. On the cotton-wool plug at the end of the extraction tube, which may with advantage be drawn out twice, a layer

of 3-4 c.m. of the Spanish earth was placed, after which came a mixture of the fodder with an equal volume of Spanish earth, and finally another plug. About 12-15 grams. of the earth were used for 5 grams. of substance. The extraction lasted for 4-5 hours, and was carried out on the substance both air dried and dried at 100°C., the ether being respectively common and anhydrous in the different experiments.

In almost all cases the extract was quite colourless, and after the distillation of the ether, the residue was either colourless, slightly yellow, or light brown. It was either solid or liquid according to the material employed, but in all cases was clear and dissolved up again in anhydrous ether.

With flesh foods no precipitate was produced in the ether as is observed with the ordinary extraction process, and in the extraction of cottonseed meal, crystals of cotton stearin often separated out after standing for 24 hours. To all external appearance the extracts of all the fodders were purer than they have hitherto been obtained.

In the single case of hay from clover grass it was found impossible to entirely get rid of the chlorophyll colouring matter, although the solution was less intensely coloured than usual.

The ordinary fodders, with a normal amount of fat, gave the same amount of extract whether the ether used was anhydrous or not; on the other hand, fodders rich in fat, such as the pressed cakes of sesame, coco-nut, palm kernels, poppies, and the flesh fodders, gave less extract by a few tenths when perfectly anhydrous ether was used.

Fermentation residues sometimes gave the same result; sometimes a slightly different one when the dry ether was substituted for the ordinary article, but the amount was as a rule less than that obtained by the ordinary process.

The difference between the amounts of fat obtained by previously drying the material and extracting with anhydrous ether and those got by the use of Spanish earth along with either dry or moist ether, often exceeded 10 per cent. of the whole amount. It was greatest with earth nut cake, cotton seed meal, poppy cake and sesame cake, and least for linseed meal and palm kernel cake, although this was not invariably the case.

Although I have not entered upon an exact examination of the fat extracts obtained by the use of Spanish earth, a subject to which I hope to return, they can without hesitation be termed purer. It must, however, be acknowledged that anhydrous ether is in every case to be preferred to the ordinary moist article. The previous drying of the substance followed by extraction with anhydrous ether in the presence of Spanish earth, proved unsuitable, the results coming too low. The difference between a simple extraction with anhydrous ether and the extracts of the air-dried substance and that of the substance dried at 100°C., was not nearly so great as if Spanish earth had also been present. The fatty matters probably undergo a change during the previous drying and become partly converted into resin. In the process as hitherto applied, this change may not have had much effect on the final result, since the resin produced is soluble in ether, and is therefore extracted in due course and weighed. In the presence of Spanish earth, however, the resinous products are held back. The determinations last described have only been made with a small number of materials, cotton seed meal, linseed meal, earth nut meal, and rape cake, but it has to be assumed that the others will behave in a similar manner.

It follows, then, from the experiments described, that in the extraction of fodders the use of gypsum and animal charcoal results in a purer extract but varying results. The employment of Spanish earth is equally adapted for obtaining a pure extract, and, in addition, the results are constant when one kind of ether is used. Anhydrous ether gives, in comparison with the ordinary moist material, lower but more accurate numbers. A previous drying of the substance must not be named out, as it gives too low a result.—*Zeit. für Angew. Chem.*

THE INSTITUTE OF CHEMISTRY LABORATORY.—At the last extraordinary meeting of the Institute, the necessary steps were taken for proceeding with the proposed Laboratory, which will be principally used for examination purposes. The tender of Messrs. Parkinson and Son was accepted. The laboratory will have accommodation for thirty-two students, the laboratory and balance room being on the ground-floor. The basement will be devoted chiefly to spectrum analysis. The accepted tender is for £2,055. 10s., and not £2,098. as generally stated, being made up as follows:—Building, including general and combustion laboratories, balance room, stairs and corridor, drainage and ventilation, £1,352. Fitting throughout, plumber, gas-fitter and joiner, including cloakroom and lavatory accommodation, £703. 10s. The following resolution was put to the meeting and duly carried:—“That the report of the council be adopted, and the trustees be authorised to sell out sufficient stock to meet the extra expenditure incurred in the construction of the laboratory according to the tender of Messrs. Parkinson and Son.”

GERMAN MINERAL STATISTICS, 1892.

The following figures give the amounts and value of the chief minerals and raw metals produced in Germany and Luxemburg during the past year:—

		COAL AND BITUMEN.	
		Tonnes of 1,000 kilog.	Value M. 1,000.
Coal	71,327,752	526,896	
Peat	20,977,931	57,747	
Asphalte	53,279	419	
Petroleum	14,527	880	
		MINERAL SALTS.	
Rock Salt	659,322	2,812	
Kainit	548,445	7,822	
Other Potash Salts	802,630	10,114	
		ORES.	
Iron Ore	11,539,235	41,279	
Zinc Ore	800,167	21,221	
Lead Ore	163,372	14,658	
Copper Ore	567,630	20,513	
Gold and Silver Ores	19,319	3,665	
Manganese Ore	32,891	508	
		SALTS OBTAINED AS BRINE.	
Common Salt	499,606	13,821	
Potassium Chloride	123,961	16,426	
Glauber's Salt	55,864	1,542	
Potassium Sulphate	26,267	4,288	
Potassium Magnesium Sulphate	11,593	913	
Magnesium Sulphate	23,879	336	
Aluminium Sulphate	23,388	2,193	
Alum	4,276	470	
		SMELTED ORES, ETC.	
Iron (crude)	4,913,174	227,948	
Zinc	139,938	55,062	
Lead (block)	97,936	20,582	
Copper (block)	24,778	24,754	
		Kilograms.	
Silver	487,784.17	57,026	
Gold	2,896.94	8,005	
		Tonnes.	
Vitriol and Anhydrous Sulphuric Acid	436,172	13,610	

THE GAS SUPPLY OF LONDON.

THE quality of the gas supplied to the City of London for the week ending July 1, 1893, was not very good. According to the report of Mr. W. J. Dibdin, chemist and superintendent gas examiner to the London County Council, the tests made at the various testing stations showed three deficiencies in illuminating power, all against the Gas Light and Coke Co. The following figures have been prepared from the report, and show the average composition of the gas calculated on the mean test:—

Company.	No. of districts tested.	Illuminating power (in stand. sperm candles).	Sulphur. Grains in 100 cb. ft.	Ammonia. Grains in 100 cb. ft.	Sulphuretted hydrogen.
		Mean average.	Mean average.	Mean average.	
Gas Light and Coke Co.	14	16'32	9'66	0'37	Nil.
South Metropolitan Gas Co.	6	16'68	11'60	0'71	Nil.
Commercial Gas Co. ..	2	16'25	5'45	0'40	Nil.

The supply during the week ending July 8 was without a deficiency. The results, calculated as above, were:—

Company.	No. of districts tested.	Illuminating power (in stand. sperm candles).	Sulphur. Grains in 100 cb. ft.	Ammonia. Grains in 100 cb. ft.	Sulphuretted hydrogen.
		Mean average.	Mean average.	Mean average.	
Gas Light and Coke Co.	14	16'52	10'21	0'35	Nil.
South Metropolitan Gas Co.	6	16'73	11'56	0'68	Nil.
Commercial Gas Co. ..	2	16'20	6'00	0'40	Nil.

The standard gas supplied by these companies should have an illuminating power of 16 sperm candles, and contain not more than 22 grains of sulphur and 4 grains of ammonia per 100 cub. ft. of gas on an average of three days, with a pressure of one inch between sunset and midnight, and six-tenths of an inch between midnight and sunset.

THE BOILING POINT OF MINERAL OILS.

(Specially contributed.)

BY D. R. STEUART.

THE chief difficulty which has hitherto stood in the way of accurate determinations of the boiling points of the heavy mineral oils has been the want of a suitable thermometer. The Baly and Chorley high temperature thermometer, however, overcomes this difficulty, and it was with such a thermometer that the following experiments were made, the distillations being carried out for me by my assistant, Mr. John Woodrow. The thermometer used was graduated at every 5°. The distillations were performed in a copper flask, 10,000 fluid grains being taken for each experiment, and collected in fractions of 1,000 fluid grains. The temperature was taken at the end of each fraction and also the specific gravity of each fraction was observed. The oils operated on were ordinary oils, such as are manufactured from shale in the Broxburn Paraffin Oil Works. The tests were made on oils that had not been treated with oil of vitriol and soda, which treatment reduces the specific gravity a point or two. The following table shows the results obtained. Six oils were experimented with. The figures in the first vertical column refer to the number of the fractions, which were 10 in all:—

Sp. Gr. of Oil		·902		·8925		·871		·866		·839		·832	
		Temp.	Sp. Gr.	Temp.	Sp. Gr.	Temp.	Sp. Gr.	Temp.	Sp. Gr.	Temp.	Sp. Gr.	Temp.	Sp. Gr.
	First drop over @	725° F		675° F		575° F		575° F		450° F		500° F	
1	10 % over	745	·886	705	·878	610	·859	600	·856	500	·806	510	·818
2	20 % "	745	·888	715	·880	615	·860	605	·857	530	·823	515	·821
3	30 % "	750	·889	720	·882	620	·862	610	·858	545	·829	520	·824
4	40 % "	760	·891	730	·884	630	·863	615	·860	560	·836	530	·826
5	50 % "	770	·895	740	·887	640	·866	620	·861	570	·839	540	·829
6	60 % "	780	·898	755	·890	655	·868	630	·863	585	·843	550	·830
7	70 % "	790	·901	775	·893	675	·871	635	·864	605	·847	565	·831
8	80 % "	805	·904	795	·898	695	·873	650	·868	630	·852	585	·832
9	90 % "	820	·907	830	·904	730	·883	670	·872	660	·856	615	·834
	95 % "	830		840		760		680		675		630	
	97 5 % "	850		850		785		695		690		645	
10	100 % "	875	·919	880	·912	800	·892	710	·879	700	·863	675	·841

EXPORTS OF ALKALI AND BLEACH.

THE following figures, which are taken from the official foreign and colonial statistics of the United Kingdom, give the amount and value of alkali and bleaching materials shipped to the undermentioned countries during the month of May, 1893, as compared with the same month in 1892:—

ALKALI.

Port.	1892.	1893.	1892.	1893.
	Cwts.	Cwts.	£	£
Russia	21,496	44,208	10,314	17,342
Sweden and Norway	8,135	11,483	2,842	2,830
Germany	6,966	11,426	3,378	4,814
Holland	4,645	8,397	1,391	2,037
France	5,966	4,149	2,818	1,558
Spain and Canaries	24,345	20,759	10,844	9,217
Italy	13,299	14,284	5,919	5,602
United States	358,642	324,015	120,602	90,215
Australasia	12,143	10,060	4,636	3,625
British North America ..	28,031	29,519	9,445	8,069
Other countries	57,306	73,153	22,593	24,116
Total	540,974	551,453	194,782	169,425

BLEACHING POWDER, ETC.

Port.	1892.	1893.	1892.	1893.
	Cwt.	Cwt.	£	£
United States	83,126	72,302	34,069	30,708
Other countries	62,183	73,587	24,089	29,682
Total	145,309	145,889	58,158	60,390

Agricultural Notes.

REMOVING INSECTS AND VERMIN.

THE chief difficulty which attends a great many methods for removing insects from trees, &c., is that the compounds used are poisonous. A new compound has lately been introduced into this country by Messrs. Bryce and Rumpff, under the name of "Antinonin," which is made by F. Bayer and Co., Elberfeld. The substance when properly diluted forms a most efficacious and safe insecticide, as it does not injure the most delicate plants or their foliage. It is really a preparation of potassium orthodinitroresol ($C_6H_3(NO_2)_2CH_2OK$), which is mixed into a yellowish red paste readily soluble in water with soap and glycerine. It is quite free from odour, which adds considerably to its convenience, while the presence of soap prevents to a certain extent its being eaten by useful domestic animals. Though originally intended to destroy a certain kind of caterpillar or gypsy moth (*Nomenraupen*), it has also been found to destroy mice, ants, snails, and all kinds of plant lice, as well as protecting wood from dry rot and fungi.

Fermentation and putrefaction, as is well known, are caused by lower kinds of fungi in the presence of moisture. Timber and all kinds of wood or plant-material employed in buildings are readily affected in

damp ground and air by these lower plant-parasites. By the decomposition of the retained albuminous constituents of the wood-fibre, the wood itself undergoes a disintegration, obnoxious gases are evolved and the cellulose suffers in its structure and durability. Still more are such processes of putrefaction and destruction taking place in buildings and rooms subjected to dampness and uncleanness, like close dwellings, water-closets, sinks, urinals, cellars, stables, etc. They are frequently the breeding places and pest-holes for infection to men and domestic animals, and the origin of typhus, diphtheria, cholera, and other malignant bacteriological diseases. Thorough disinfection and removal of the causes of infection are the only remedies and protection, and perfect cleanliness is the best preventive against dampness, fermentation and slow putrefaction of and in the wood-work, walls, wall-paper, furniture, etc., of rooms and houses. The first step to attain this is the destruction of fungi and all lower plant life which is the cause or the bearer of infection. For this purpose a solution of 1 kilo. (2·2 lbs.) of Antinonin in 300 litres (630 pints) of water will be found most effective. Household mice and field mice readily succumb to a dose of three-twentieths of a grain of this preparation. In dealing with field mice it is best to make a mixture of antinonin with flour and water. One part of the Antinonin paste is mixed with ten parts of flour, and sufficient water is added to form a semi-solid mass, which is made into globules varying in size from a pea to a bean.

Any woodwork to be placed under ground or in damp surroundings, like railroad poles, telegraph poles, beams for foundations, etc., may be protected for any length of time by previously impregnating them with a strong solution of Antinonin.

On damp and mouldy walls in cellars, stables, factories, breweries, and other structures and manufacturing buildings where cleanliness and immunity are requisite factors, the application of antinonin solution from time to time will be a sure protection against parasitical pollution and consequent moulding and putrefaction.

It may, therefore, safely be claimed that of all the known antiseptic and antizymotic products of modern synthetic chemistry, Antinonin not only admits of the most general application, but is also one of the safest, most effective and durable.

Official Memoranda.

(From the Board of Trade Journal.)

CUSTOMS TARIFF OF VICTORIA.

The following is a conclusion of the statement of import duties now leviable upon goods of interest to those connected with the chemical and allied industries, upon entering Victoria (continued from No. 318, p. 401):—

Name of article.	Rate of duty.
Glucose) solid	per cwt. £ s. d.
" liquid	" " 0 6 0
Matches and vestas (except wood, safety—free) Vestas	per gross of boxes containing 100. 0 3 0
Wooden	" " 0 1 3
Oils in bulk (except cocoanut, fish oil, refined mineral ignition, point below 80° F., kerosene, palm, lubricating, consisting mineral oil and resin—free)	per gallon. 0 0 6
Oilmen's stores (except essential oils, &c.)	20% ad val.
Oilmen's stores (not otherwise enumerated)	10% ad val.
Paints and colours, ground in oil....	per ton. 2 0 0
" " ready mixed....	" 4 0 0
Baking, sedlitz, and washing powders	20% ad val.
Salt (except rocksalt—free)	" 1 0 0
Soap, perfumed	per lb. 0 0 4
" ordinary	" 0 0 2
Soda crystals	per ton. 2 0 0
Stearine	per lb. 0 0 2

ALUMINIUM IN FRANCE.

The *Société Bernard Frères* has made arrangements, it is stated, to enlarge its works for the production of aluminium at St. Michel and Froges. The advantage France has in aluminium manufacture, on account of the deposits of bauxite in the departments of Var and Alps-Maritimes, which are said to be much purer and of more even quality than the bauxite of Alabama and Georgia, is thought to be considerable.

PROSECUTION FOR BUTTER ADULTERATION IN NORMANDY.

Mr. F. Bernal, her Majesty's Consul-General at Havre, in a recent report to the Foreign Office, encloses an account taken from a Havre newspaper of the prosecution of a butter merchant at Lisieux, on the 26th June, for adulterating butter. The defendant, who does a large trade with England, added margarine to his butter. He had already been condemned to four months' imprisonment. The punishment for the present offence was *eight months' imprisonment*, a fine of 3,000 francs, and the insertion of the judgment in 45 newspapers of the five departments of Normandy.

NORWEGIAN WOOD PULP PRICES.

Mr. T. Michell, her Majesty's Consul-General at Christiania, states that at a meeting of the Norwegian and Swedish sections of the Cellulose Pulp Association held in that city, the following standard prices were unanimously adopted:—

- For prime, dry, unmixed sulphate Kr. 200 to Kr. 210
- For second quality ditto Kr. 185 to Kr. 195
- For prime, dry, unmixed sulphate pulp Kr. 180 to Kr. 190
- For second quality ditto Kr. 170 to Kr. 180

All per 1,000 kilos. (1 ton) f.o.b. in the Christiania fiord or the Swedish harbours on the West Coast.

It was also again agreed that in computing the weight of air dry pulp 12 per cent. shall be added to the gross weight, or that 100 kilos. air dry cellulose shall contain 88 kilos. absolutely dry pulp, and 12 kilos. water.

The British importers of wood pulp are aware that these prices are not obligatory on the manufacturers, who strive, however, to obtain them.

RUSSIAN PETROLEUM.

The Russian petroleum market is at the present time in a very favourable condition in consequence of news arriving from Baku that the proprietors of the naphtha springs have succeeded in furnishing a quality of petroleum offering every security and inoffensive to a degree

hitherto unknown. The specific gravity of the new product is '50, its explosive temperature 100°F.

The process employed has this in particular, that in place of from 25 to 30 per cent. of normal petroleum which has been extracted from the naphtha, 70 to 80 per cent. can be obtained. In order to differentiate the new product from the old a reddish tinge is given to it, which does not at all affect its purity and brightness. It is already in great demand both at Odessa and Baku.

THE PRODUCTION OF TARTARIC MATERIALS IN ITALY.

The following information respecting the production of tartaric materials in Italy is extracted from a report to the Foreign Office by Mr. E. H. B. Hartwell, Her Majesty's Consul at Naples.

The large increase in the production of tartaric materials in Italy, must be attributed to the abundant wine harvests during the last quinquennium. In their exportation the southern provinces of Italy have the largest share. From reliable authority I am enabled to state that the total exports from Italy to foreign countries from October, 1891, to September, 1892 (the period in which those articles are produced and exported), amounted to 9,814 tons, representing a value of £425,240. sterling, of this total amount 1,512 tons, value £98,280. sterling was composed of the "half refined tartars," 3,124 tons, value £181,100. sterling, of "Vinaccia Argols," 2,430 tons, value £104,640. sterling, of "Crude Argols," and 2,748 tons, value £41,220. sterling, of "Wine-lees."

No less than 4,022 tons, value £174,300. sterling, were shipped from Naples alone, and chiefly to the United States of America, that country taking 2,069 tons. In the United States these articles are mostly used in the production of baking powder in substitution of the more expensive yeast. Great Britain took 709 tons from here, France 253, and Italy 106 tons; the balance was shipped to the other European countries.

The excellent harvest of last year, with good prospects of the present one, had the effect of bringing down prices to a point which has not been touched during the last 30 years.

ASBESTOS IN NEWFOUNDLAND.

Regarding asbestos mining the report of Mr. Howley, of the Newfoundland Geological Survey, states that the first active operations were undertaken by a United States syndicate which leased a mining property in the vicinity of St. George's Lake, situated between St. George's Bay and Bay of Islands. Mr. Howley says of this locality that he found one vein measured 9 inches wide, consisting of several rudely parallel layers of fibre divided by this layer of serpentine. The fibre varied in length from $\frac{1}{2}$ in. to 2 inches, and was of fairly good quality. The indications are certainly good, the quality of the fibre excellent, and should the serpentine deposit in which the mineral occurs be found to occupy any considerable area, there is a reasonable prospect that asbestos will accompany it. Prospecting, however, is a very tedious and expensive operation, and the lack of transport facilities is a great drawback, everything which was needed in connection with the work last year having to be carried on men's backs from the sea-shore through the woods, a two days' desperate drag. Other deposits are being developed at Bluff Head, Port-au-Port Bay, and Lewis Brook. Should this valuable mineral be found in available quantity in this country, as there is every reason to expect, adds the report, its development is likely to prove one of our most important and remunerative mining industries in the near future.

PETROLEUM PROSPECTS OF SAGHALIEN.

The existence of petroleum at the northern extremity of the island of Saghalien, on the eastern coast of Siberia, was known some ten years ago from the presence of small quantities in the springs. Recently a careful exploration was made by Mr. L. Baciewicz, a Russian mining engineer, which has confirmed the existence of petroleum in considerable quantities, not only at the northern extremity of the island, but along the coast of the Gulf of Pabil. The borings which have revealed the presence of the oil are near the shore of the Okhotsk Sea, the farthest distance being 15 miles; an excellent harbour with water deep enough for the largest vessels is found at Pabil. The explorations showed oil at a depth of 21 ft., and several of the borings at from 21 to 30 ft. yielded from 20 to 30 gallons a day, with an apparent increase as the depth became greater. At present, however, none of the wells have been carried to any considerable depth, but it is proposed at an early date to begin exploring the country systematically by a succession of deep wells.

In quality the oil resembles the Baku petroleum; its specific gravity is from 0.890 to 0.895, and a careful analysis of a large sample of oil shows about 30 per cent. of refined oil, with a considerable quantity of lubricating oil and other heavy products. The "astatki" or heavy refuse is very similar in composition to that from Baku, which

is extensively used as a steam-producing fuel for locomotives, steamers, and stationary engines in eastern Russia.

The importance of the discovery of petroleum here is considerable, as the island is close to China and Japan, both great consumers. The imports of American petroleum into those countries are large; the importation of Russian oil into China was begun only in 1889, but the latest statistics obtainable show that it has reached in a short time 36 per cent. of the total amount. The Amour territory, as settlement there increases, will also offer a considerable market, and, with the completion of the railroad, shipments can be made to Western Siberia. The oil can be used as fuel for locomotives on the Siberian railroad and also for the Russian steamers on the Pacific. Practice with the steamers on the Caspian Sea has shown that one ton of astatki is equal in evaporative power to about two tons of English coal. Allowing the same cost of production as at Baku the petroleum can be sold at about 25 copecks per pood, or about 1 cent per gallon, and it is believed that the cost can be reduced considerably below that point with proper appliances.

The island of Saghalien is being settled by an intelligent class of men who make good workmen, most of them having been convicts who have served out their time at the mines and elsewhere in the Trans-Baikal and other parts of Siberia, but are not allowed to return to Russia; they are colonised on the island, receiving allotments of land.

MANGANESE ORE TRADE IN THE CAUCASUS.

The manganese ore trade in the Caucasus to the United Kingdom and the United States of America is steadily increasing. In his report to the Foreign Office on the trade and commerce of Batoum for the year 1892, Mr. P. Stevens, her Majesty's Consul at that port, writes:

"It is stated that as soon as the branch railway from the Transcaucasian main line to Chiatur is completed, which is expected to take place shortly now, this trade will, according to all present appearances, assume very large proportions. The Government has lately been much concerned in the welfare of the mining industry of the Caucasus, and measures have been adopted for the immediate improvement of the existing horse tracts in the mining sections of the sub-district of Sharapan. The construction of macadamised roads has also been undertaken in those sections, which, when brought into use, will render the mines easier of access, and enable mine-owners to deliver the ore at a reduced rate at the railway station of Kviril, situated about 50 miles distant from the mines, on the Transcaucasian main line, which is in direct communication with the ports of Batoum and Poti, whence the ore finds its way abroad."

In order to illustrate the saving that will take place, the present prices paid for manganese at the sea-board may be quoted as well as the prices at which it is expected dealers will be able to deliver the ore at the same spot on completion of the improvements above referred to:—

	Present Prices per Pood.	Expected Future Prices per Pood.
	Copecks.	Copecks.
Cost of ore at the mines.....	8	8
Transport to Kviril.....	25	5
Commissions	2	2
Freight from Kviril	4	4
Total.....	39	19

The average f.o.b. price paid for this ore at the sea-board is, therefore, about 40 c. per pood, which is equivalent to 10d. for every 36 English lbs., and the saving that is likely to occur is 20 c., or 5d. per pood. It is said that $1\frac{1}{4}$ d. of this sum will go towards advancing the price of the ore at the mines, and another $1\frac{1}{4}$ d. towards increasing the commissions, so that a net saving of $2\frac{1}{2}$ d. per pood will take place in the f.o.b. price of the ore. The quantity of manganese ore shipped in the Caucasus for the United States of America in 1892 was 26,420 tons, valued at £62,066., and the total quantity that left the country during the same period reached the figures of 33,790 tons, and £76,861. in value.

TRANSMITTING LIQUIDS BY PATTERN POST.—At a meeting of the Hull Chamber of Commerce on July 17th, the following resolution was unanimously carried, being proposed by the chairman, Alderman Stewart, to be submitted to the Associated Chambers at the annual meeting at Plymouth, in September next: "That the Post Office Authorities be urged to allow samples of liquid to be sent to the Continent as they are received from the Continent, namely, by pattern post, as the present practice imposes upon the trades of the United Kingdom an unfairly increased cost."

Our Book Shelf.

THE TWENTY-NINTH ANNUAL REPORT ON ALKALI, ETC., WORKS.

—By the Chief Inspector, A. E. Fletcher, F.C.S., London: Eyre and Spottiswoode, 1893.

The report before us acts as a reminder that on the first of April of the present year the Alkali, etc., Works Regulation Act came into force. As a consequence, many processes emitting noxious vapours have been brought under Government inspection, and we have little doubt but that they will now be better looked after than they have been hitherto by the local authorities under the Public Health Acts.

The imperfections of the older Alkali Acts were notorious, yet, notwithstanding the imperfect nature of the legislation, surprising effects followed intelligent inspection, and while we hear on all sides nothing but condemnation of the pettifogging interference of local sanitary inspectors of Local Boards of Health, and their permanent officials, no one has a word to say against the Alkali Inspector, or the way in which he carries on his investigations.

The fact is, alkali, etc., works inspection has been reduced to a science—it is not carried on in the slipshod fashion of the smoke inspector, or the nuisance inspector, who has a Nelson eye for the chimney of his employers on the "Board," or a Nelson nose for the bone works of the guardian who has his say in the doling out of his salary. No, the alkali inspectors are responsible only to the central authority in London; they are not paid (and thus encouraged to prevaricate) upon that most vicious of all systems—a commission upon convictions—consequently we have inspection without fear or favour, inspection scientifically conducted, and a system which has wrought miracles, when compared with all other forms of inspection.

If we look back thirty years, to the days when all acid gases were sent up tall chimney shafts in order to get rid of them, to the days when William Gossage turned the old windmill shaft in his works into a muriatic acid tower, by filling it with gorse and brushwood, and showering water down to condense the fumes, we shall find such an improvement and development scarcely to be found in any other industry. In this connection we may refer to the chief inspector's statement on page 12. From the Report, it would appear that the chimney at St. Rollox was the highest in Great Britain. There are two tall chimneys in the St. Rollox division of Glasgow, Joe Townsend's and Chas. Tennant's, the former being the taller by a few feet; there is a history appertaining to the building of these chimneys, which was given to the writer in 1876 by Townsend himself, and may possibly interest our readers on some future occasion.

But *revueons à nos moutons*, the new Act is cited in the Report, and the schedule of new works coming under inspection is given in full. Alkali waste works, barium works, strontium works, antimony sulphide works, bisulphide of carbon works, Venetian-red works, lead deposit works, arsenic works, nitrate and chloride of iron works, muriatic acid works, fibre separation works, tar works, zinc works, now come under inspection for the first time; they have had thirty years' grace, and if their houses are not found in order they should be dealt with severely. A rather amusing fact is, that the new Act is scarcely six months old, and difficulties are cropping up already in connection therewith. Even before the Act came into force, the chief inspector and his staff foresaw difficulties which were likely to arise, and they may be found on page 13 in the following words: "To describe all the various processes of manufacture which give rise to certain noxious gases is difficult, and even if at any time the list can be made complete, it is soon rendered imperfect by the establishment of new processes." In his report to the Secretary for Scotland, he says further "It is much to be regretted that in accordance with past legislation it has been thought necessary in this way to name specially every process of manufacture to be included under the Alkali Act, on account of some noxious gas liable to be discharged from it. It would have seemed on many grounds preferable to have named the gases themselves, and not the processes which generate them, enacting that all the processes of manufacture from which such gases were discharged should come under inspection. The number of such noxious gases as would thus be named is only seven, while the number of the processes which generate them is indefinite, and a schedule of them can never be considered complete."

Two sets of very interesting tables appear in the earlier part of the report, the one relating to the hours of work of the operatives, the other referring to their weekly earnings. Though certainly outside the scope of the Alkali Acts the tables are interesting and valuable, and if the inspectors choose to do more work than is assigned them, few perhaps, will be disposed to grumble. One thing strikes us, however, figures are apt to become very sharp, double-edged tools, and their value depends entirely upon the methods by which the numbers are arrived at. There are many things to be taken into account before we can accept the death-rate figures given in this report as of any value whatever, and in the wages returns, the office expenses should not have

appeared, or if it was thought wise to include them, there should have been some differentiation.

We shall not say more on this occasion. The report contains matter for several notices, and we think it better to deal with each phase separately, and to reserve further criticism until a more convenient occasion.

IMPORTS AND EXPORTS FOR JUNE.

THE Board of Trade returns for the month of June are, on the whole, satisfactory. The exports of chemicals show a decrease, but oils have increased as compared with same month last year.

IMPORTS OF FOREIGN AND COLONIAL PRODUCE.

		Quantities.	
		1892.	1893.
Margarine	cwt.	84,738	88,481
Copper ore and regulus.....	tons	22,183	18,634
Hides, dry and wet	cwt.	70,767	70,462
Nitrate of soda	tons	4,593	4,557
Tallow and stearine	cwt.	150,365	183,117
Tin			

EXPORTS OF BRITISH AND IRISH MANUFACTURES

		Quantities.	
		1892	1893.
Alkali	cwt.	390,425	451,371
Cement	tons	39,048	48,883
Coal and coke.....	"	2,630,892	2,943,919
Copper, all kinds	cwt.	119,901	120,254
Iron and steel.....	tons	215,348	296,264
Chemical manures	"	28,287	27,905
Oils, seed	"	4,937	6,264
Salt	"	67,540	60,981

Correspondence.

* We do not hold ourselves responsible for the opinions expressed by our correspondents.

ANSWERS TO CORRESPONDENTS.

- C. B.—Your communication to hand. Accepted with thanks.
 G. L.—We are obliged for your letter. Its contents have been duly noted.
 H. W.—Nos. 302 and 313 have been forwarded as requested. They are 4d. each post free.
 D. L. Co.—We trust to have your favourable decision shortly.
 W. S. C.—Your letter to hand. We have your suggestion under consideration, but as the space allotted to each section is limited, we are not always able to do all we might wish to.
 R. H. AND CO.—Full particulars have been forwarded by post.
 P. T. A.—(New Brunswick.) Letter and contents safely to hand. See this issue for reference to enclosure.
 A. C.—Thanks for information and your compliance with our request. We have made a note of the matter this week, you will notice.

Trade Notes.

ERRATA—In our last issue, inadvertently, an error crept into the article on page 35, on Bleach Powder Solutions. In the thirty-seventh line of the article the formula should not read $\text{Ca}(\text{OCl})_2$, but CaOCl_2 .

THE GORTON SEWAGE SCHEME.—A letter has been received by the Clerk of the Gorton Local Board from the Local Government Board sanctioning the borrowing of money for the purpose of the Gorton sewage scheme, which will involve an outlay of £39,000.

FIRE AT A CHEMICAL WORKS.—A fire occurred recently at the works of Messrs. Winder and Co., chemical manufacturers, Birmingham. The flames were subdued in about an hour and a half. It was found that an oven becoming overheated had set fire to a quantity of sulphur. Considerable damage was done to the building and its contents.

A NOVEL ADULTERATION.—According to a contemporary adulteration in Australia is quite "up-to-date." Adulterated litharge, containing ten per cent. of matter insoluble in acetic acid, has been found by Dr. A. Schneegans. The adulterant was proved to be fine white sand coloured with a little ferric oxide.

A NEW LABORATORY.—At the Limerick Summer Assizes last week the question of establishing a local chemical laboratory for the purpose of getting analyses done more quickly than at present came under consideration. It was stated that the laboratory would cost up to £500. The grand jury expressed approval, provided that the chemist in charge should be fully qualified for the position.

THE CREWE STEEL WORKS STOPPED.—The London and North-Western Railway Company are stopping their steel mills and furnaces at Crewe for four months, and a great number of men will be thrown out of work. The company promise to find employment for as many as they can in other departments, but it is feared that about 500 will be locked out. Some changes in the official staff are also contemplated.

EXTENSION OF COKE OVENS.—The Mining Co. of Gelsenkirchen, is reported to be building 100 new coke ovens at the Germania and Hansa mines. The new ovens at the Massen mines, near Unna, are nearly completed. The "Deutsche Kaiser" Mining Co. also contemplates the establishment of a considerable number of coke ovens for 1894.

A SIMPLE INSECTICIDE.—According to the subject of an English and American patent, a combined insecticide and plant fertilizer is made by drying the "lime mud" obtained by boiling together soda ash or black ash, and milk of lime, in the manufacture of caustic soda. When dried, the substance is pulverised, and is especially intended as a dressing for the destruction of wire worms.

PRECIPITATING BLOOD ALBUMEN.—A patented method of accomplishing this consists in treating defibrinated blood with methyl-alcohol and acetone, and a small quantity of sulphuric or phosphoric acid. The almost colourless flakes of albumen, which are precipitated, are separated by filtration, and washed with alcohol and subsequently with water. The product is suitable for both industrial and alimentary purposes.

THE COMMERCIAL PRODUCTION OF OZONE.—We learn that the manufacture of ozone on a commercial scale has been accomplished by M. Emile, Andreoli. The apparatus, which is working at the works of Messrs. Allen & Hanbury, Bethnal Green, is, it is stated, ozonising 6% of the oxygen of the air at the ordinary temperature, and under ordinary conditions. An alternating current of high pressure (8,000 to 10,000 volts) is being employed.

THE MANCHESTER ELECTRIC LIGHT INSTALLATION.—This installation is now rapidly approaching completion. A current from the central station in Dickinson-street, has been used to illuminate the committee-room of the Gas Department, the Lord Mayor turning on the light. Some fifty business houses have been coupled with the main cable, and if present expectations are realised, the light will be ready for use the first week in August.

LABOUR DEMONSTRATION AT NORTHWICH.—On Saturday last a united labour demonstration was held at Northwich, several trade unions being present to support the Northwich and District Amalgamated Society of Salt, Rock-Salt and Alkali Workers, and General Labourers. Prior to the procession Mr. J. T. Brunner, M.P., unfurled a handsome new banner belonging to this Society. Speeches were made by the Mayor of Crewe and Mr. J. H. Wilson, M.P., in support of trade unions. The meeting passed off satisfactorily.

THE UNITED ALKALI CO. WILL STOP.—In consequence of the dispute in the coal trade, the United Alkali company have given notice to the workmen and boys in their employ that they cannot find employment for them after the 24th instant. The company further state that the works will be closed on that date until after the fuel and salt contracts are resumed. In Widnes alone nearly 9,000 men are affected by this order, and as the company have a monopoly in Newcastle and Glasgow the number of men unemployed may be quadrupled.

PROSECUTIONS UNDER THE FACTORY ACT.—During June last there were 228 prosecutions under the Factory and Workshop Act, out of which there were 214 convictions. The fines imposed amounted to £270. 16s. The chief item among the fines is the total of £73., paid in four convictions, for employing hands at night during illegal hours. There were seven convictions on the ground of insanitary or uncleanly condition of workshops, etc., the penalties in which cases (including costs) amounted to £6.

THE CHOLERA AND HOME PORTS.—A conference has been held at Liverpool, at which Mr. T. W. Thompson, the Local Government Board Inspector, reported his inspection of the district. He said it had been noticed that the disease did not completely die out for a number of years, and thus they would have to run the risk of having it imported occasionally for several years. He congratulated the Liverpool authorities upon the very great advance they had made of late, and said

there had been very great improvement. In addition to minor points, he recommended a launch for the purpose of boarding vessels entering a port, and that more attention should be paid to coastwise vessels.

ELECTROLYTIC COPPER.—An immense electrolytic copper refinery has been started at Great Falls, Montana, by a Boston Company. It comprises 288 depositing vats, capable of containing at one time 710 tons of pig copper anodes, and has a capacity of 555 tons of pure electrolytic copper per month. The plant is run by water power, situated at a distance of about half a mile from the works. The current is supplied by two 165 kilowatt dynamos. The metal to be refined contains a large percentage of silver, all of which will be saved by the electrolytic process employed.

PERSONAL.—A new professor has been secured by the trustees of the Brooklyn Polytechnic Institute for the department of chemistry in the person of Dr. Peter T. Austen, who will assume his duties at the beginning of the fall term. Next year the department will become a more important feature of the college course than it has been hitherto. Dr. Austen is a native of New York City and about 42 years of age. After completing his studies in that country he went to Berlin and graduated as a chemist there with high honours. On returning to America Dr. Austen soon gained a high reputation, and as a teacher and organizer in State scientific schools of New Jersey became well known. The chemical course of the Polytechnic will be remodelled and will embrace four years of study.

THE IMPORT TRADE OF CEYLON.—To manufacturers the import trade of Ceylon is of considerable interest. The returns of the Customs show that since 1885 the trade of the colony had been steadily increasing. We have received a copy of the returns for 1892 from Messrs. W. H. Davies and Co., of Ceylon, from which we extract the following items of interest to our readers, the figures representing the value of the goods imported into the colony:—Artificial and bone manures, £16,953; pitch, tar, resin, and asphalt, £1,105; blasting requisites, £5,646; cement, £16,000; candles, £1,442; galvanized iron, £18,021; matches, £5,236; mining requisites, £5,645; kerosine oil, £43,344; lubricating and vegetable oil, £8,928; painting materials, £7,156; soap, £7,516.

WOLVERHAMPTON AND ITS SEWAGE.—For some time the question of pressing the sewage sludge at the Barnhurst Precipitation works has been under discussion at Wolverhampton, and finally the Corporation has decided to act upon the recommendations of the Sewage Committee, which were as follows:—(1) That two new filter presses be provided at a cost not exceeding (without the further sanction of the council) £600. (2) That the Finance Committee be authorised to apply to the Local Government Board for their sanction to a loan of £600. (or such further sum as may be sanctioned by the council,) and when obtained to borrow all necessary money, and if necessary to raise Wolverhampton Corporation stock for the purpose of defraying the cost of the presses. (3) That the committee be authorised to advertise for tenders for the said presses.

NITRATE SHIPMENTS FOR PAST HALF-YEAR.—According to the report of Messrs. Dobell and Co., of Liverpool, the stocks of sodium nitrate are very small, although the consumption has been small, on account of the drought. The quantity afloat is 33,000 tons more now than it was in 1892, yet the total visible supply is less than it has been during the past three years, and is better than 70,000 tons less than at the same period last year. The following are the figures up to the end of June:—

	1893.	1892.
Stocks, U.K. and Continent, June 30	18,900	122,650
Afloat " " "	216,000	183,000
Total visible supply	234,900	305,650
Consumption, U.K. and Continent, Jan. 1 to June 30	527,200	594,990

Market Reports.

TAR AND AMMONIA PRODUCTS.

Benzol seems to be going from bad to worse, the quoted prices being no guide to the actual state of the market. Quotations vary from 1s. 5d. for 90's to 1s. 4d. for 50/90's, but business has been done at lower prices than these. All other products remain much the same as last week.

There is little alteration to report in the sulphate of ammonia market, which has still a very firm tone, though from some quarters reports are being spread that prices are tending downwards. Makers will hardly be deceived by this ruse. Through lack of supplies there have not been many sales, but the market has been well cleared of anything offering up to £13. 5s., which is now the value all round. Nitrate is steady at 10s. per cwt.

REPORT ON MANURE MATERIAL.

There continues to be good enquiry for both phosphatic and nitrogenous material, but prices demanded stand in the way of large business.

The market for mineral phosphates is firmer all round. For 75/80% Florida rock 8½d. per unit is readily obtainable for continental ports, and it is doubtful whether anything less would be accepted for cargoes to United Kingdom. Hot-air-dried South Carolina river rock is very firm at 6¾d. per unit c.i.f. in cargoes, and for Peace River rock, 60%, 7s. is now required.

Owing to difficulty in obtaining vessels, shippers of River Plate bones refuse to make offers for shipment, unless at impossible prices. Probably the nearest value of cargoes is £4. 10s. delivered, United Kingdom; £4. 7s. 6d. would readily be paid. For crushed Kurrahee bones for shipment, £4. 10s. now required, and very limited quantity obtainable at that price. Bombay bone meal for Autumn shipment is quoted £4. 15s. ex quay Liverpool, but buyers don't respond at the price. £4. 5s. ex quay Liverpool paid for good Mediterranean bones, for charring purposes.

Nitrate of soda is perhaps a shade easier. Spot, Liverpool, is still quoted 9s. 9d. to 10s. per cwt., but London being 9s. 1½d., and Bristol 9s. 3d., supplies are for the most part being drawn from those ports.

Due cargoes, ordinary quality, are worth about 8s. 10d. per cwt., April-May sailings 8s. 9d., and September-October 9s. 1½d. Refined cargoes of handy size are worth about 3d. per cwt. more.

In the absence of supplies there is very little doing in miscellaneous nitrogenous material. Latest sales of River Plate dried blood, low test, have been at 9s. 6d. and 9s. 7½d. per unit of ammonia. Home prepared is worth 9s. 9d. to 10s. 3d. per unit, free on rails, according to quality and position of works in relation to shipping port. River Plate guanos are worth about 9s. 6d. per unit ammonia and 10d. phosphates.

MISCELLANEOUS CHEMICAL MARKET.

There is nothing new to report this week. Bleaching powder continues firm at £8. nett for softwoods on rails, and £8. 10s. hardwoods, f.o.b. Makers all round are well supplied with orders. Caustic soda of all grades is moving better, but there is no change in prices. Soda ash remains dull and low figures are still being quoted to induce orders, especially in 58% alkali. Saltcake difficult to sell and most unremunerative prices are being realised. Soda crystals in slightly better demand. Chlorate of potash steady at 8d. Sulphate of Copper continues dull, and price has a lower tendency. Ammonia salts of all kinds are in good request, and prices are firm. Murate, grey £21. 10s. to £22., carbonate 3½d. for lump and 3¾d. for powdered. Sal ammoniac 35s. and 37s., acetate of soda, steady, at £16. c.i.f. Brown acetate of lime, dull, at £5. 17s. 6d.; grey £10. White powdered arsenic continues to hold a strong position, and price is firm at £13. 10s. and £13. 15s. at Garston. Sulphur, recovered, is still depressed by the prices at which the imported article is selling. Nitrate of soda moves freely at £10, bichromates in slow demand at convention rates. Carbolic acids have an upward tendency, and we are of opinion that better prices will shortly be seen.

THE METAL MARKETS.

LONDON, WEDNESDAY.—Pig iron dull. Scotch warrants closed at 41s. 7½d. cash. Middlesbrough 34s. 11½d. cash, and hematite 44s. 8d. Copper, steady: Chili bars, G.O.B.'s and G.M.B.'s closed at £42. 11s. 3d. to £42. 18s. 9d. cash, and £43 to £43. 7s. 6d. three months. Tin quiet: Straits closed at £82. to £82. 10s. cash, and £81. 5s. to £81. 15s. three months. Australian £83. 15s. English ingots, £86. 10s. to £87. Lead, dull: Spanish, £9. 15s. to £9. 17s. 6d. English, £10. to £10. 2s. 6d. Silesian spelter: Ordinary, £17. 12s. 6d. Nickel 1s. 8d. Antimony, £38. 10s. Quick-silver: First hands £6. 17s. 6d.; second hands, £6. 14s. 6d. Copper shares flat: Cape, 1¼ to 1½. Copiapo, 1¾ to 2. Libiola, 2¾ to 3¼. Mason and Barry, 1¾ to 1½. Rio Tinto, 14½ to 14½; Tharsis, 4½ to 4½; Namaqua, ¾ to ¾.

WOLVERHAMPTON, WEDNESDAY.—Market excited on the coal trade crisis. Fortunately the South Staffordshire ironworks, like those of Cleveland, will be able to keep going, only a few of the coal masters having given notice. Iron orders from other districts may therefore be expected. Prices firm in all departments, especially Midland pigs, fearing a cessation of supplies. Northampton and Derbyshire sorts 42s. to 43s., Lincoln 45s., Staffordshire medium 42s., and common 35s. Sheets are still improving at £6s 17s. 6d. singles, and £7. doubles. Bars steady; best £7. 10s., common £5. 10s. Coal advanced.

W, WEDNESDAY.—Market easy, with fair business. at 41s. 8d., 41s. 8½d., 41s. 7½d., and 41s. 8d. cash, 10d., 41s. 10½d., and 41s. 10d. one month; closing at 41s. 7½d. cash, sellers ask 41s. 8d. Middlesbrough, 1½d. eighteen days; closing with buyers at 34s. 11½d. ask 35s. Cumberland hematite closes with buyers at 44s. 10d. Middlesbrough hematite closes at 43s. 3d. cash, sellers ask 43s. 9d.

LIVERPOOL OIL AND COLOUR MARKET.

Palm oil is firm and prices have advanced, considerable being done at the higher figure, to-day's value being £25. per ton to arrive, and £25. 5s. spot, both transit. much better demand in the early part of the week, but is a good request to-day, though there is a moderate enquiry at recent currencies. Linseed: The position is full prices are to be had, holders being very firm at 22s. for Liverpool makes in export casks. Rape: Refined unaltered in position and price. Cottonseed has fulfilled, and prices have advanced to 22s. 6d. to 24s. 6d. per cwt. for Liverpool refined is steady. Castor oil is firm; good cutta is steady at 2½d. per lb., but first pressure French easier, offering at 2½d. to 2½d. per lb., according to fallow is firm in position and price. Resin: Common is in good request at 3s. 9d. per cwt., but the position of the is more satisfactory. Spirits of turpentine have again advanced 22s. per cwt. is now ruling price. Petroleum is much American 4¾d. to 5½d., according to quality, Russian per gallon.

RS unchanged and steady. Ochres: Oxfordshire, common, 12s., best, 15s.; Derbyshire, common, 40s.; medium, 10s.; Welsh, best, 70s., seconds, 50s., and common, 18s.; nshire, 40s. to 45s.; French, J.C., 55s. to 60s.; M.C., 65s. Umber: Turkish quiet; Devonshire, 50s. to 55s. White lead, and oxide of zinc unchanged. Venetian red, £6. 10s. Cobalt: Prepared oxide, 9s. 9d.; black, 9s.; blue, 6s. 10. 1, 3s. 6d.; No. 2, 2s. 6d. Oxide of iron: Common, 10s., finest, £20. Zinc oxide, £23. to £25.

LIVERPOOL MINERAL MARKET.

eral market continues firm. Manganese is steady at full rate, 7d. per lb.; sulphate, £21. 10s.; oxalate, 1s. 6d. per lb., £15., carbonate, £12. 10s., steady. Magnesite (raw) quiet; raw ground, £6. 10s., and calcined £12. 10s. (ish Hill brand): Shipments continue on a fairly large p 20s., seconds 16s., thirds 12s. French chalk: The a little easier this week, but prices maintain their firm- ytes: Carbonate scarce; nuts, 72s. 6d. to 85s.; finest ate is in demand. "Angel White," No. 1, 70s.; No. 65s.; No. 3, 45s. Pumicestone quiet. Iron ore flat, sh, and Cumberland slow. Santander and mangani- quiet. Emerystone firm; No. 1 lump, £5. 10s. to £6.; to £5. 10s. Fullers' earth: Best lump, 55s.; fine ground, £7.; "Emerald" ground, 80s. Scheelite, wolfram, f soda, and tungsten metal in good demand. Chrome improvement reported last week has been well main- an increased demand for export. Antimony ore easier, s., and metal £43. to £45. Asbestos firm. Potters' mals, £10. 10s. to £11. Calamine strontia sulphate quiet. Limespar steady, especially for English manu- old G.G.B. brand in demand at 50s. (ground). Felspar uorspar: Best quality scarce. Ferro-manganese slow.

Spanish, £5.; best Ceylon lump at last quotations; Bohemian, £4. to £12. per ton; "Founders," £5. to £6.; "Mineraline," £10. French sand, 20s. to 22s. 6d. ca, £45. to £50. China clay steady, common, 18s. 6d.; im, 22s. 6d. to 25s.; best, 30s. to 35s. (at Runcorn). ide of iron): finest quality 25s. to 30s.

PAINT, OIL, AND COLOUR REPORT.

TUESDAY.

Trade generally is assuming a more reassuring aspect, still identical feeling is desirable to create speculation. Linseed oved 10s. per ton on the week, and closes steady thereat. on oil closes 10s. per ton higher. The exports show a

decided improvement upon the same time last year, being linseed oil 1,391 cwt. against 396 cwt., and cotton oil 3,083 cwt. against 2,207 cwt. There is good trade done here in the manufacture of fish oils, which at present are in good supply, but for some inexplicable reason or another the prices cannot be made here which are realised in some other markets. The following are the current prices: linseed oil steady, 21s. naked spot, July-August 20s. 9d., and September-December 19s. 3d.; casks 17s. 6d. and barrels 22s. 6d. per ton extra. Cotton oil, refined, closing with buyers 20s. 9d. naked spot or July-August; November-April worth 18s. 3d. per cwt. Fish oils: crude sperm £36. and £50.; cod oil, coast £17. to £20, Newfoundland £26.; herring oil, good, bright, £16. 10s. per ton, olive oil no change, common resin £3. 15s. to £4. per ton, castor oil unchanged, refined rape oil 25s. 6d. per cwt. in pipes. Petroleum jellies 26s. to 28s.

CAKES.—Linseed and cotton cakes continue to be improving in value, and sellers are firm in their demands. The prices are: linseed cakes 95 per cent. pure, £8. 15s., ordinary £7. 5s. to £7. 10s., Americans £7. 12s. 6d., Russians £8. 10s. Cotton cake sellers are refusing £5. 5s. and generally demand £5. 7s. 6d. to £5. 10s. Rape cakes £4.

PAINTS.—These articles continue in good demand, makers generally being busy, especially so in the better class of varnishes, the export of painters' colours, &c., showing an improvement upon the same time a year ago, and a falling-off in chemicals. Of colours the shipments were 1,968 packages, against 1,039 packages, and chemicals 1,177 packages against 1,617 packages; the prices being: white and red lead and white oxide of zinc unchanged, oxide of iron, dry, £9. to £18. per ton, Venetian red, dry, £6. to £10. Paints ready mixed in various sized tins, 28s. to 30s. per cwt. Assorted enamels from 4s. 9d. per dozen. Fine linseed oil putty, £6. per ton.

TYNE CHEMICAL REPORT.

TUESDAY.

Chemicals continue steady, with a full consumptive demand. Soda crystals are scarce, and firm at £2. 5s. and £2. 10s. Caustic soda, 76/77%, £10. 15s. and £11., and scarce. Bleach quiet at £8. 5s. per ton nett.

Bleaching powder, softs, £8. 5s. per ton nett; hards, £8. 10s. per ton; caustic soda, 76/77%, £10. 15s. per ton, 70%, £9. 10s. per ton; recovered sulphur, 2 cwt. bags, £4. 2s. 6d. per ton; soda ash, 48%, £4. per ton, 52%, £4. 7s. 6d. per ton, 56%, £4. 15s. per ton; alkali, 36%, £3. 15s. per ton; white alkali, 48%, £4. 15s. per ton, 50%, £5. per ton, 52%, £5. 5s. per ton; hyposulphite of soda, in 5-7 cwt. casks, £7. per ton, ditto, in 1 cwt. kegs, £7. 15s. per ton; silicate of soda, 75° Tw., £2. 15s. per ton, 100° Tw., £3. 10s. per ton, 140° Tw., £3. 17s. 6d. per ton; soda crystals, in casks, £2. 10s. per ton gross weight, in 2 cwt. bags, £2. 10s. per ton nett weight; chlorate of potash, 8¾d. per lb. less 6%; pearl hardening, £3. per ton nett; pure white sulphate of alumina, £4. 2s. 6d. per ton; blanc fixe, £7. 10s. per ton; chloride of barium, £7. 10s. per ton; carbonate of alumina, £28. 15s. per ton nett; aluminate of soda, £33. 15s. per ton nett; in 5 ton lots, £28. 15s.; hydrate of barium, £10. per ton nett.

South Durham Salt unaltered, at 8s. 6d. per ton f.o.r., or 9s. 1d. per ton f.o.b. Tees.

Coals.—There is a feeling of satisfaction here at the decision of the miners of Northumberland and Durham not to take part in any "National" strike, and it is believed that, with the certainty of South Wales, South Staffordshire, and Scotland also working, the strike will not last long. To-day, best Northumberland steam is steady at 9s. 6d. per ton; small steam, 3s. 6d. per ton; bunker coal unaltered, unscreened, 6s. 3d. and 6s. 6d. per ton; gas coal in fuller demand, 6s. 6d. per ton; best Durham coke in good demand at 14s. per ton.

WEST OF SCOTLAND CHEMICALS.

GLASGOW, TUESDAY.

The whole of the chemical works of this immediate quarter (Glasgow), and the great bulk of those of the West of Scotland generally, closed gates last week for the chief industrial holiday of the year, ranging from four days to a fortnight, according to the condition of the call upon production. To nearly the whole of the works the interruption is welcome from the masters' point of view, the market, for long, having been badly in need of a stimulant. Two of the days being a business holiday as well, buying and selling are not in evidence, and the usual market indications are not so manifest, but there is no improvement in chemicals generally—that is certain. Bleaching powder, chlorate of potash, and sulphate of ammonia are still the exceptions, although the first-named holds the late price not quite so firmly now. Sulphate of

copper and caustic soda are both down, while soda crystals and alum have been put up. In the section of mineral oils and paraffins, extreme dullness prevails, aggravated by the keenness of American and Russian competition, which has now driven the Scotch oil (burning) out of almost every market but the home one.

Chief prices current are:—Soda crystals £2. 15s. nett, Tyne; soda ash £5. 5s. nett, Tyne; refined alkali £6. 10s. nett, Tyne; alum in lump, £5. 10s. nett, Glasgow; caustic soda, white, 74° £10. 10s., 70/72° £9., 60/62° £8., and cream 60/62° £7. 15s., all nett Liverpool; bleaching powder £8. 5s. nett Tyne; saltcake 24s; borax, English refined, £30., and boracic acid, £37. 10s. nett, Glasgow; bicarbonate of soda, 5-cwt. casks, £6. 10s., and 1 cwt. casks £6. 15s. less 2½%, Liverpool; bichromate of potash, 4½d. nett, for Scotch and English deliveries (for export, 4¼d. nett f.o.b. Glasgow); bichromate of soda, 3¼d. nett, for Scotch and English deliveries (for export, 3½d. nett, f.o.b. Glasgow); chlorate of potash 8¼d. less 5% Liverpool; nitrate of soda, 9s. 3d; sulphate of ammonia, £13. 5s. to £13. 7s. 6d. f.o.b. Leith; sal ammoniac, first and second white, £37. and £35. less 2½% any port; sulphate of copper, £15. 15s., less 5% Liverpool; paraffin scale, hard and soft, 1¾d. per lb; paraffin wax 120° semi-refined 2¾d.; paraffin spirit (naphtha) 3¼d. a gallon; paraffin oil, burning, 4¼d. to 5¼d., at works, according to quality, for Scotch buyers (English sales about ½d. to 1d. lower); ditto (lubricating) 865° £3. 10s. to £3. 15s., 885° £4. 5s. to £5. 15s., and 890/895° £5. to £6. 10s. Week's imports of raw sugar at Greenock were 38,152 bags.

New Companies.

London Sanitary Laundry Union, Ltd.—This company has been formed to acquire land, laundries, etc., for the cleansing, chemical dyeing, bleaching, and sanitary treatment of apparel.

Moelwyn Mining Co., Ltd.—CAPITAL £15,000., in £15. shares. This company has been formed to acquire lead mines and quarries in Wales, in the county of Merionethshire. The subscribers to the memorandum of Association are:—E. Storey, Lancaster, manufacturer; J. H. Storey, Lancaster, manufacturer; H. L. Storey, Lancaster, manufacturer; W. J. Storey, Preswylfa, Rhyl, Flintshire, ironmaster; E. Pritchard, Garybwlet, Merioneth, manganese merchant; E. Sutcliffe, Mostyn, Flintshire, furnace manager; A. Barratt, Mostyn, Flintshire, cashier.

Shortridge and Wright, Ltd.—CAPITAL £20,000., in £10. shares. This company has been formed with a view to purchasing the business of Messrs. Shortridge and Wright, of Yorkshire, and to manufacture and deal in gunpowder and other explosives. The subscribers to the memorandum of Association are:—H. R. Winterton, 59, Calthorpe-road, Edgbaston, solicitor; W. Stanley, Birmingham, clerk; G. J. Withington, Patley, Birmingham, clerk; H. G. Silk, Birmingham, clerk; W. Cockburn, 155, Little Green Lane, Birmingham, clerk; Q. A. Smallwood, Castle Bromwich, Birmingham, B.A.; J. H. Rice, 105, Albert-road, Aston, Birmingham, insurance agent.

The Patent List.

This list is compiled from Official sources in the Manchester Technical Laboratory, under the immediate supervision of George E. Davis and Alfred R. Davis, who report professionally upon the value of Chemical Patents.

APPLICATIONS FOR ENGLISH LETTERS PATENT

- Apparatus for Calcining Bicarbonate of Soda to form Carbonate of etc. La Societe Marcheville, Daguin and Co. 12,997. July 3.
 Manufacture of Soap. Didier, Nagy and J. Block. 13,057. July 4.
 Improved Furnaces for Using Coal Dust as Fuel. C. Wegener and Baumert. 13,068. July 4.
 Obtaining Chromium, Manganese, Molybdenum, Titanium, Vanadium, etc., from their Alkaline Earth Compounds. A. Sternberg, Deutsche. 13,117. July 5.
 Production of Illuminating Gas and Bye-Products from Liquid Hydrocarbons and Apparatus Therefor. W. Young. 13,126. July 5.
 Chemical Handbills. T. P. Jary. 13,127. July 5.
 Improved Boilers for Cooking Esparto Grass, etc. G. Sinclair. July 5.
 Secondary Electric Batteries. The Lithanode & General Electric Co., Ltd. J. T. Niblett. 13,217. July 6.
 Elements for Secondary Electric Batteries. The Lithanode and General Electric Co., Ltd. and J. T. Niblett. 13,218. July 6.
 Insecticides. E. A. White. 13,219. July 6.
 Enamelling Metals, etc. R. H. Hepburn and A. Hepburn. 13,227. July 6.
 Treating Sewage Sludge. R. C. Tanner. 13,305. July 7.
 Improvements in Tanning and Apparatus Therefor. A. Masare. July 7.
 Electrolytical Production of Nickel and Other Metals. C. H. Niblett. 13,336. July 7.
 Manufacture of Carbon for Electrical Purposes. H. H. Lake. July 7.
 Improvements in Electric Furnaces. H. H. Lake. 13,340. July 7.

Gazette Notices.

PARTNERSHIPS DISSOLVED.

- J. CARR, R. C. CARR, A. O. CARR and J. J. CARR, manufacturers of fire glazed tiles, etc., North Shields, under the style of John Carr and Sons.
 J. J. BROOK and J. HANSON, under the style of Hanson, Dale and Co. merchants, Huddersfield.
 J. VICARY, W. VICARY, R. VICARY and C. G. VICARY, Newton Bushel, Devon and elsewhere, tanners, fellmongers, etc., under the style of John Vicars and Sons, as far as regards J. Vicary.

BANKRUPTCY ACTS, 1883 and 1890.

Receiving Order.

FLETCHER, THOMAS, Broadhurst Gardens, West Hampstead, N.W., late Wotton, Surrey, Electrician.

Adjudication.

GIBBINS, JAMES BURT, Mark-lane, E.C., chemical merchant and commission agent.

IMPORTS OF CHEMICAL PRODUCTS

AT

THE PRINCIPAL PORTS OF THE UNITED KINGDOM.

LONDON.									
Week ending July 8th.									
Acetanilide —		Alum —		Belgium,		Holland,			
Holland,		Germany,		40		40 pkgs.		G. Se	
5 pkgs.		21 pkgs.		J. L. Lyon & Co.		11		V.	
Beresford & Co.		Beresford & Co.		200 bgs.				Etal	
Acetic Acid —		Ammonia (Liquid) —		Germany,				Caustic Potash —	
Holland,		Holland,		25 cks.				France,	
110 pkgs.		3 pkgs.		O'Hara & Hoar				100 c.	
Beresford & Co.		H. Lorenz		20					
250		Antimony —		Holland,				Castor Oil —	
A. & M. Zimmermann		Sydney,		104				France,	
250		25 t.		A. Zumbeck & Co.				30 brls.	
Acetone —		31		Caoutchouc —				Belgium,	
Holland,		Cnl. Lightge Co.		Carthage,				56	
1 pkge.		Pillow, Jones & Co.		45 c.					
Phillipps & Graves		Smith, Sundius & Co.		Prop Bull Wf.				Chemicals (otherwise named)	
10		48 c.		Hopkins, Ford & Co.				Germany,	
A. & M. Zimmermann		B. & F. Wf. Co., Ltd.		E. Indies,				28 pkgs.	
Alkali —		Asbestos —		4				14	
France,		Belgium,		P. E., Africa,				R. Morrison	
655 c.		Canada,		1				81	
Arnati & Harrison		34		Mess. Parisiennes				A. & M. Z	
Germany,		Holland,		12					
40		35		W. M. Smith & Sons					
A. & M. Zimmermann		Barytes —		E. Indies,					
		Germany,		700					
		135 cks.		Prop. Bull Wf.					
		W. Harrison & Co.		83					
				L. & I. D. Jt. Co.					
				Beira,					
				7					
				Portugal,					
				360					
				Prop. Bull Wf.					
				Carbonic Acid Gas —					
				Holland,					
				14 pkgs.					
				Volcanic					
				Aeration Co.					

Sit ate of Lime — Italy, 10 pkgs. C. Webster	Iodoform — France, 2 pkgs. Mory & Co.	Sulphur — Italy, 6 t. F. Smith 25 C. Vincent	Dried Blood — B. Ayres, 100 bgs.
Cream of Tartar — Holland, 23 pkgs. Middleton & Co.	Lead Acetate — Germany, 16 pkgs. Beresford & Co.	Tartaric Acid — Holland, 5 pkgs. J. Owen 48 B. & F. Wf. Co., Ltd.	Dye stuffs — Algarobilla Huaco, 297 bgs. A. W. Real
France, 2 Maconochie Bros.	Magnesia — Holland, 23 pkgs. Beresford & Co.	Holland, 27 Spain, 26 Novelli & Co.	Annatto Bordeaux, 12 cks
" 2 J. L. Lyon & Co.	Manganese — Japan, 360 t. J. Swire & Sons	Ultramarine — Belgium, 5 cs. W. Harrison & Co.	Cochineal Gr. Canary, 25 bgs. W. Duranty & Son
" 7 G. Ward & Sons	Manure — Germany, 1 t. T. H. Lee	Holland, 5 Haefner, Hilpert & Co.	Divi Divi Hamburg, 82 bgs.
" 5 W. C. Bacon & Co.	Melbourne, 10 Vokins & Co.	" 5 Hernu, Peron & Co.	Extracts Baltimore, 63 brls
" 15 B. & F. Wf. Co., Ltd.	France, 10 J. Burnett & Sons	Germany, 31 pkgs. G. Steinhoff	Logwood Bordeaux, 275 cks. J. T. Fletcher & Co.
Dextrine — Germany, 50 pkgs. H. Lorenz	Iquique, 780 W. Montgomery & Co.	" 17 G. Steinhoff & Sons	Antwerp Fustic Old Harbour, 257 t. B. Hall & Co.
" 100 Hernu, Peron & Co.	Germany, 10 F. W. Berk & Co., Ltd.	Varnish — Belgium, 2 pkgs. Tingle, Jacobs & Co.	Old Harbour , 166 t. B. Hall & Co.
Dye stuffs — Italy, 1,724 pkgs. B. Jacob & Sons	Holland, 3 H. & E. Albert Leach & Co.	U. States, 12 Taylor Bros.	Laguna , 3,200 qntrs. D. Midgeley & Son
" 56 Thames S. T. & L. Co. Ltd.	Methyl Alcohol — U. States, 429 brls. J. Kertel	France, 21 Beck & Pollitzer	Myrabolams Bombay, 2,035 bgs. D. Sassoon & Co.
Cutch Holland, 10 pkgs. J. Barber & Co.	Germany, 18 dms. Lister & Biggs	Holland, 12 Flageolet & Co.	1,011 bgs.
Extracts France, 44 pkgs. Carey & Sons	Holland, 8 cks. Stein Bros.	Vermillion — Germany, 4 cs. Philipps & Graves	Saffron Valencia, 2 cs.
" 200 L. J. Leviastain & Sons	Germany, 2 dms. Elkan & Co.	Hong Kong, 5 cs. R. Warner & Co.	Turmeric Calcutta, 9 bgs.
" 175 B. & F. Wf. Co., Ltd.	Mica — Ceylon, 164 W. M. Smith & Sons	White Lead — Germany, 21 cks. M. Ashby, Ltd.	Yalonia Bombay, 25
U. States, 50 W. Burton & Sons	Sydney, 20 L. & I. D. Jt. Co.	Holland, 41 W. Fenton	Constantinople , 1,190 bgs.
" 8 W. W. Young	E. Indies, 195 W. M. Smith & Sons	" 20 Burrell & Co.	Smyrna, 960 ktls. Essayan, Shaban & Co.
" 85 T. H. Lee	Ochre — France, 16 cks. J. L. Lyon & Co.	Germany, 85 Philipps & Graves	" 2,850 25 1/2 t. 850 bgs.
Denmark, 1 Tegner, Price & Co.	" 10 pkgs. Philipps & Graves	" 14 P. Jantzen	Farina — New York, 200 sks.
Canada, 80 A. J. Humphrey	" 51 cks. W. Harrison & Co.	Belgium, 9 Leach & Co.	Fiume, 230 bgs.
Gambier E. Indies, 494 pkgs. Brown & Elmslie	Paraffin Wax — U. States, 145 brls. Mordaunt Bros.	" 9 J. L. Lyon & Co.	" 50 C. J. Vander Veen & Brs.
" 1,220 L. & I. D. Jt. Co.	" 2,129 J. H. Usmar & Co.	Zinc Oxide — Germany, 100 brls. M. Ashby, Ltd.	Glucose — New York, 310 brls.
" 934 Beresford & Co.	" 100 L. & I. D. Jt. Co.	Holland, 102 10 cks. Philipps & Graves	Hamburg, 22 cks.
" 843 Williams, Torrey & Co., Ltd.	Phosphate Rock — Bermuda, 703 t. F. C. Devon & Co.	LIVERPOOL. Week ending July 6th.	Baltimore, 106 brls.
" 76 Prop. Bull Wf. J. Greig	Algeria, 315 Perkins & Homer	Acetate of Lime — New York, 1,762 bgs.	Rotterdam, 40 cks.
Indigo E. Indies, 75 cts. L. & I. D. Jt. Co.	France, 113 A. Hunter & Co.	Acetic Acid — Rotterdam, 5 cby.	Iron Oxide — Montreal, 10 brls. 25 brls. W. Lester & Son
Logwood B. Honduras, 200 t. A. Hagan	Bona, 315 H. Clarkson & Co.	Acids — Rotterdam, 37 botls.	Limestone — Antwerp, 3 crts. J. T. Fletcher & Co.
Nadder Holland, 5 pkg. Skilbeck Bros.	Plumbago — Ceylon, 52 brls. Prop. Sun Wf.	Alumina Sulphate — Rotterdam, 20 cks.	Manganese — Gothenburg, 1 pkg. Caucasian Trdg. Corpn. Ltd.
Myrabolams E. Indies, 1,673 A. Hag-n	Germany, 10 bgs. Brasch & Rothenstein	Antimony — Syra, 280 bgs. G. G. Blackwell	Mineral White — Trieste, 100 bgs.
" 767 Beresford & Co.	" 2 cks. Fellow, Morton & Co.	Antofagasta, 62 Hainsworth, Watson & Co.	Nitrate — Rotterdam, 8 cks.
" 1,800 W. Shelcott	" 157 B. Gallaway	Barytes — Antwerp, 21 cks. 50 bgs.	Ochre — Rouen, 35 cks. R. J. Francis & Co.
Orchella E. Indies, 187 pkgs. Lewis & Peat	Potash — France, 104 c. Petri Bros.	Bone Meal — Bombay, 2,000 bgs.	Alicante, 503 bgs.
Sumac Italy, 150 pkgs. Sollas & Sons	Potassium Bromide — U. States, 40 pkgs. C. F. Gerhardt	Calcutta, 2,240	Paint — New York, 10 cks. 1 kg. Light-bound, Aspinall
" 100 C. E. Fosbrooke	" 20 S. Lambert & Co.	Borate of Lime — Antofagasta, 1,125 bgs.	Paraffin Scale — New York, 365 brls. H. Hill & Sons
" 300 Vokins & Co., Ltd.	Potassium Carbonate — Canada, 75 cs. I. Barber & Co.	Borax — Rosario, 864 bgs. Torrome Son & Co.	Phosphate — Cossaw, 300 t. Phospho Guano Co.
" 30 Galbraith, Pembroke & Co.	France, 17 pkgs. Carey & Sons	Caoutchouc — Antwerp, 10 bgs.	Treport, 340
Tanner's Bark A. Adelaide, 61 t. Baxter & Hoare	Potassium Permanganate — Germany, 15 pkgs. Spies, Bros. & Co.	Paiza, 14 pkgs. F. Huth & Co.	Phosphate Rock — Beaufort, 3,956 t. J. Ledger & Co.
Sydney, 4 Dyster, Nalder & Co.	Pumice Stone — France, 2 t. Stobbs, Wilson & Co.	Castor Oil — Calcutta, 500 cs. Petrocchino Bros.	Plumbago — Antwerp, 5 bgs.
Belgium, 37 Leach & Co.	Italy, 7 O'Hara & Hoar	" 784 Ralli Bros.	Potash — Hamburg, 7 cks.
P. E. Africa, 1 J. Owen	Pyrites — Portugal, 900 t. Mason & Barry, Ltd.	Genoa, 519 60 Evans, Sons & Co.	Rotterdam, 20
Melbourne, 65 Devitt & Hett	Spain, 600 Anderson, Anderson & Co.	Chemicals (otherwise undescribed) In transit, 2 cs.	Potassium Carbonate — Hamburg, 29 cks.
" 137 Baxter & Hoare	Salt — Portugal, 180 t. Weston & Westall	Rotterdam, 2 cks. 10 cks.	Pumice Stone — Leghorn, 23 cks.
Adelaide, 41 A. & W. Nesbitt	Saltpetre — E. Indies, 1,486 bgs. Perkins & Homer	Rouen, 23 cks. R. J. Francis & Co.	Pyrites — Huelva, 5,438 t. Matheson & Co.
Turmeric E. Indies, 227 pkgs. L. & I. D. Jt. Co.	" 557 Ralli Bros.	Colours — Rotterdam, 7 cks.	Rosin — Bordeaux, 611 cks.
" 157 Hale & Son	Sodium Acetate — France, 9 pkgs. S. F. Waters & Co.	Cottonseed Oil — New York, 276 brls.	New York, 690 brls.
" 163 Beresford & Co.	Stearine — Belgium, 25 bgs. H. Hill & Sons	Cream of Tartar — Barcelona, 14 cks. 2 pps.	Salt — Akassa, 1 ck. Royal Niger Co.
" 1,500 Ralli Bros.		Rotterdam, 6 Middleton, Kirkpatrick	Antwerp, 190 t.
Farina — Holland, 50 pkgs. J. Barber & Co.		Barcelona, 5 Sachse and Klemm	Saltpetre — Calcutta, 968 bgs. Ralli Bros.
Germany, 50 L. & I. D. Jt. Co.			" 953 25 brls.
French Chalk — Austria, £80 W. Harrison & Co.			
Glucose — Germany, 12 pkgs. 95 c. J. Knill & Co.			
" 20 162 Prprs. Chmbln. Wf. Soundy & Sons			
U. States, 75 412 T. M. Duche & Sons			
" 35 190 Pickford & Co. B. & N. Whys. Co.			
San Francisco, 500 2,600 R. G. Hall & Co.			
U. States, 350 1,920 W. Balchin Prps. Sun Wf.			
" 275 1,594			
" 100 531			
" 50 250			

Soap—		
Syra,	2 cs.	F. Sarantis
Philadelphia,	8 pkgs.	
Rotterdam,	2 cs.	
Bari,	194	
Soapstone—		
Bordeaux,	100 bgs.	G. G. Blackwell
Soda—		
Rotterdam,	25 brls.	
Sodium Silicate—		
Rotterdam,	2 cks.	
Tallow—		
B. Ayres,	402 hpps.	
Boston,	200 tcs.	31 brls. 16 cks.
New York,	50 hhd.	Co-op. W'sale Society Ltd.
"	40	
Philadelphia,	160 tcs.	
Rouen,	143 bgs.	R. J. Francis & Co.
Tartar—		
Bordeaux,	22 cks.	
Bari,	5 cs.	
Tartaric Acid—		
Rotterdam,	4 cks.	Sachse & Klemm
Tincal—		
Calcutta,	173 bgs.	
Turpentine—		
In transit,	1 cs.	Cunard S. S. Co., Ltd.
Ultramarine—		
Rotterdam,	3 cks. 13 cs.	
Yarnish—		
New York,	11 brls.	Pinchin, Johnson & Co.
Verdigris—		
Bordeaux,	1 ck.	
Waste Salt—		
Hamburg,	30 t.	
White Lead—		
Antwerp,	11 cks.	
Rotterdam,	42	
Ghent,	10	
Zinc Oxide—		
New York,	1 brl.	T. Irvine & Co.
Antwerp,	65 brls.	
Rotterdam,	75 cks.	
Zinc Skimmings—		
New York,	15 cks. 91 brls.	
Montreal,	27 brls.	W. Blyth & Co.

HULL.*Week ending July 8th.*

Acetic Acid—		
Rotterdam,	25 balns.	10 chys. Hutchinson & Son
Acid—		
Rotterdam,	20 brls.	W. & C. L. Ringrose
Alkali—		
Flushing,	1 cs.	G. Lawson & Sons
Aniline Colours—		
Antwerp,	12 brls.	Wilson, Sons, & Co., Ltd.
Arsenic—		
Hamburg,	50 cks.	Wilson, Sons, & Co., Ltd.
Asbestos—		
Flushing,	4 bls.	Brasch & Rothenstein
Barytes—		
Antwerp,	23 cks.	H. F. Pudsey
"	14	Gibson Bros.
"	21	Storrey, Witty, & Co.
Bremen,	25	Veltmann & Co.
"	46	Tudor & Sons
"	103 bgs.	
Antwerp,	56	
Caoutchouc—		
Hamburg,	2 cs.	C. M. Lofthouse & Co.
Caustic Soda—		
Rotterdam,	2 cs.	Hutchinson & Son
Chemicals (otherwise undescribed)		
Stettin,	18 cks.	Wilson, Sons, & Co., Ltd.
Bremen,	2 cs.	Veltmann & Co.
Rotterdam,	7	Hutchinson & Son
Dunkirk,	64 pks.	Wilson, Sons, & Co., Ltd.
Colours—		
Rouen,	3 cks.	Rawson & Robinson
Rotterdam,	49 pkgs.	57 pks. W. & C. L. Ringrose
"	4	A. Sanderson & Co.
"	1 cs.	Blundell, Spence, & Co.
Stettin,	22	
Flushing,	17	G. Lawson & Sons
Ghent,	20 brls.	
Bremen,	5 cs.	Veltmann & Co.
Rotterdam,	5	G. Lawson & Sons
Flushing,	6	11 pks. Hutchinson & Son
"	1 cs.	Brasch & Rothenstein
Dextrine—		
Stettin,	50 bgs.	
Dyestuffs—		
Alizarine		
Rotterdam,	34 pks.	41 pkgs. 5 cks. W. & C. L. Ringrose
Madder		
Rotterdam,	4 cks.	Hutchinson & Son
Myrabolams		
Bombay,	1,300 pkts.	
Farina—		
Harlingen,	100 bgs.	750 pks.
Antwerp,	50	Bailey & Leatham
Hamburg,	150	Wilson, Sons, & Co., Ltd.
Dunkirk,	50	"
Glucose—		
New York,	290 brls.	
Rotterdam,	50 bgs.	Hutchinson & Son
Stettin,	12 cks.	
Lead Acetate—		
Hamburg,	1 ck.	
Lime—		
New York,	504 bgs.	Wilson, Sons, & Co., Ltd.
Linseed Oil—		
New York,	105 brls.	Wilson, Sons, & Co., Ltd.
Mica—		
Christiania,	3 cs.	Wilson, Sons, & Co., Ltd.
Ochre—		
Rotterdam,	4 cks.	Furley & Co.
Paint—		
Boston,	65 cs.	Wilson, Sons, & Co., Ltd.
"	2	
Phosphate—		
Ghent,	816 bgs.	
Pitch—		
Dunkirk,	28 cks.	Wilson, Sons, & Co., Ltd.
Potash—		
Antwerp,	6 brls.	Bailey & Leatham
Soda—		
Antwerp,	12 brls.	8 dms. Bailey & Leatham
Tallow—		
New York,	10 pks.	
Tannin—		
Hamburg,	8 cks.	
Tar—		
Copenhagen,	1 brl.	Wilson, Sons, & Co., Ltd.
Tartar—		
Hamburg,	1 ck.	
Tartaric Acid—		
Rotterdam,	11 cks.	G. Lawson & Sons
Tin Salt—		
Amsterdam,	3 cks.	W. & C. L. Ringrose
Ultramarine—		
Rotterdam,	4 cks.	Todd & Son
Bremen,	8	
White Lead—		
Rotterdam,	9 cks.	Gibson Bros.
Antwerp,	38	Bailey & Leatham
Rotterdam,	30	Tudor & Sons
"	46	Hutchinson & Son
Zinc White—		
Rotterdam,	30 cks.	Hanger, Watson, & Harris

GLASGOW.*Week ending July 13th.*

Acetate of Lime—		
New York,	972 bgs.	
Alumina Sulphate—		
Rotterdam,	30 cks.	J. Rankine & Son
Ammonia (Liquid)—		
Antwerp,	2 cks.	
Aniline Colours—		
Rotterdam,	15 pkgs.	J. Rankine & Son
Amsterdam,	1 ck.	
Hamburg,	2 cs.	
Barium Sulphate—		
Antwerp,	150 bgs.	21 cks.
Barytes—		
Rotterdam,	114 cks.	J. Rankine & Son
"	86	
Chemicals (otherwise undescribed)		
Rotterdam,	10 cks.	J. Rankine & Son
Colours—		
Rotterdam,	40 pkgs.	
Copper Sulphate—		
Bordeaux,	3 cks.	
Dyestuffs—		
Alizarine		
Rotterdam,	36 cks.	J. Rankine & Son
"	152	
Argols		
Bordeaux,	46 bgs.	
Fustic		
Minititlan,	819 pcs.	
Logwood		
Salt River, Ja.,	552 t.	
Madder		
Rotterdam,	4 cks.	J. Rankine & Son
Farina—		
Delfeyl,	300 bls.	
Glucose—		
New York,	400 brls.	
Guano—		
Iceland,	1,613 bgs.	J. T. Salvesen & Co.
Ochre—		
Rouen,	112 cks.	
Painters' Colours—		
Antwerp,	2 cks.	
Paraffin Scale—		
New York,	810 brls.	
Philadelphia,	800	
Pitch—		
Antwerp,	11 cks.	
Potash—		
Rotterdam,	90 cks.	J. Rankine & Son
Hamburg,	55	
Potassium Cyanide—		
Antwerp,	150 cs.	
Pyrites—		
Huelva,	3,590 t.	The Tharsis Sulphur & Copper Co., Ltd.
Rosin—		
New York,	376 brls.	
Savannah,	1,650	John Parker
"	1,072	L. & J. M'Lellan
Charleston,	2,197	Rowley & Dick
Salicylic Acid		
Hamburg,	1 cs.	
Soap—		
Rotterdam,	1 cs.	J. Rankine & Son
Sodium Acetate—		
Rouen,	8 cks.	
Talc—		
Bordeaux,	2 cs.	
Tallow—		
New York,	65 trcs.	10 hhd.
"	65	Bell, Sons, & Co.
Tar—		
New York,	399 brls.	
Turpentine—		
Savannah,	1,500 cks.	John Parker
"	1,608 brls.	L. & J. M'Lellan
Charleston,	1,393	Rowley & Dick
Yarnish—		
New York,	2 cs.	
"	9 brls.	Henderson Bros.
Waste Salt—		
Hamburg,	60 t.	

White Lead—		
Rotterdam,	130 cks.	J. Rankine & Son
Antwerp,	8	
Zinc Oxide—		
Rotterdam,	23 cks.	J. Rankine & Son
Antwerp,	40	
New York,	100 brls.	

TYNE.*Week ending July 8th.*

Acetic Acid—		
Rotterdam,	85 chys.	Tyne & Sons
Aniline Colours—		
Rotterdam,	1 cs.	Tyne & Sons
Barytes—		
Rotterdam,	50 cks.	Tyne & Sons
Antwerp,	63	80 bgs.
Ochre—		
Rouen,	539 cks.	W. Young
Phosphate Rock—		
Rotterdam,	282 t.	Langdale & Ma
Pyrites—		
Copenhagen,	200 t.	
Saltpetre Salt—		
Hamburg,	250 t.	
Soap—		
Rotterdam,	1 cs.	Tyne & Sons
Stearine—		
Bergen,	50 brls.	
Sulphate of Lead—		
Gothenburg,	24 cks.	
Sulphur—		
Pomaron,	1,000 t.	
Superphosphate—		
Antwerp,	300 bgs.	Tyne & Sons
Tallow—		
Copenhagen,	1 ck.	
White Lead—		
Antwerp,	2 cs.	Tyne & Sons
Zinc Oxide—		
Antwerp,	25 brls.	Tyne & Sons

GOOLE.*Week ending July 8th.*

Antimony—		
Boulogne,	2 cks.	
Caoutchouc—		
Boulogne,	1 ck.	
Dyestuffs—		
Alizarine		
Rotterdam,	38 pkgs.	76 bls.
Fustic		
Jamaica,	479 t.	
Logwood		
Jamaica,	604 t.	
Dyestuffs (otherwise undescr.)		
Boulogne,	11 cks.	1 cs. 57
Ghent,	10	2
Farina—		
Hamburg,	460 bgs.	
Delfsyhl,	400	
Manganese—		
Rotterdam,	2 cks.	
Potash—		
Calais,	14 dms.	
Dunkirk,	42	2 cks.
Waste Salt—		
Hamburg,	1,811 cks.	1,001 bgs.
Zinc Oxide—		
Antwerp,	25 cks.	

GRIMSBY.*Week ending July 8th.*

Caoutchouc—		
Hamburg,	11 cs.	
Chemicals (otherwise undescr.)		
Hamburg,	4 cs.	10 pkgs.
Dyestuffs (otherwise undescr.)		
Dieppe,	43 pkgs.	
Farina—		
Hamburg,	440 bgs.	
Pitch—		
Dieppe,	10 cks.	
Size—		
Rotterdam,	7 pkgs.	
Antwerp,	5 cks.	
Zinc Ashes—		
Antwerp,	9 cks.	

EXPORTS OF CHEMICAL PRODUCTS

OF

THE PRINCIPAL PORTS OF THE UNITED KINGDOM.

LONDON.

Week ending July 12th.

Acids—		
St. Petersburg, 10 t.	£200	
Alkali—		
Cape, 1 t.	£11	
Sydney, 1 19 c.	6	
Lyon, 1 15	11	
Vera Cruz, 1	11	
Alum Cake—		
Calcutta, 30 t.	£110	
Ammonia (Liquid)—		
Hamburg, 15 cydls.	£35	
Ammonium Carbonate—		
Stettin, 1 t. 4 c.	£39	
St. Petersburg, 50 kgs.	63	
Paris, 32 cks.	100	
Ammonium Chloride—		
Constantinople, 2 t. 10 c.	£84	
Kingston, 2	9	
Samsoun, 10	16	
Mexico, 10	16	
Ammonium Sulphate—		
Mauritius, 150 t.	£1,900	
Berbec, 20	275	
Hamburg, 198 10 c.	2,346	
Amorphous Phosphorus—		
Hong Kong, 2 cs.	£27	
Arsenic—		
Newcastle, 1 t.	£17	
Bisulphite of Lime—		
Algoa Bay, 12 c.	£8	
Borax—		
Hamburg, 6 cks.	£48	
Sydney, 10 t. 17 c.	£578	
Carbolic Acid—		
Marseilles, 80 cks.	£605	
Genoa, 30 5 cs.	119	
Treport, 100	106	
Hamburg, 80	600	
Carbon Bisulphide—		
Dunkirk, 22 drs.	£124	
B. Ayres, 1 t. 19 c.	31	
Caustic Potash—		
Melbourne, 1 t. 14 c.	£50	
Caustic Soda—		
Hong Kong, 16 c.	£11	
Auckland, 5 t. 3	51	
Port Elizabeth, 7	12	
Durban, 7	10	
E. London, 3	7	
Sydney, 10 17	141	
Melbourne, 8 7	121	
Algoa Bay, 5	9	
Chemicals (otherwise undescribed)		
Shanghai, 1 cs.	£45	
Mauritius, 4	121	
Korshchen, 10	10	
Calcutta, 3	18	
Citric Acid—		
Genoa, 2 t. 10 c.	£400	
Dunedin, 1 cs.	6	
Calcutta, 1	10	
E. London, 3 pkgs.	30	
Nelson, 1	9	
Port Elizabeth, 1 2	24	
Rotterdam, 2 t. 12	405	
Hamburg, 1	155	
Penbay, 2	18	
Lisbon, 5 cks.	43	
Coal Products—		
Aniline		
Tientsin, 20 cs.	£175	
New York, 56 cks.	620	
Shanghai, 15 cs.	94	
Calcutta, 1 pkge.	90	
Aniline Dye		
Calcutta, 1 cs.	£89	

Aniline Oil		
Genoa, 5 drs.	£175	
Anthracene		
Rotterdam, 550 cks.	£2,762	
Benzol		
Calais, 63 brls.	£80	
Rotterdam, 15 cks.	154	
Coal Tar Dyes		
Boston, 10 pkgs.	£138	
New York, 33 cks. 14 cs.	735	
Creosote		
Dieppe, 528 brls.	£123	
Danzig, 100	67	
Naphthalene		
Hamburg, 18 cks. 25 bgs.	£73	
Paraffin Wax		
Auckland, 8 tks.	£300	
Pitch		
Naples, 50 cks.	£25	
New York, 500	258	
Boston, 200 250 brls.	226	
Malta, 40	15	
Constantinople, 200	75	
Philadelphia, 2,313 bgs.	413	
Ghent, 200 t.	240	
Sulina, 35 cks.	11	
Alexandria, 400 brls.	147	
Salonica, 50	20	
Caen, 796	1,100	
Antwerp, 765	916	
Pyridine		
Calais, 1 ck.	£10	
Tar		
Melbourne, 87 pkgs.	£18	
Mauritius, 30 runs.	16	
New York, 1,000 cks.	460	
Algoa Bay, 500 drs.	22	
Tar Oil		
Paris, 80 cks.	£120	
Coal Products (otherwise under.)		
Constantinople, 200 brls.	£75	
Copper Sulphate—		
Genoa, 5 t. 5 c.	£105	
Wellington, 1	17	
Port Elizabeth, 1 2	13	
Salonica, 1	18	
Aden, 2 4	36	
Constantinople, 3 6	56	
Otago, 2	34	
Cream of Tartar—		
Sydney, 10 c.	£39	
Melbourne, 1 t. 15	138	
Adelaide, 1	77	
Auckland, 10	39	
Townsville, 5	22	
E. London, 2 cs.	14	
Cape Town, 3	14	
Disinfectants—		
Penang, 150 drs.	£85	
Amoy, 40	30	
Hong Kong, 5 cks.	16	
Paris, 40	20	
Hamburg, 30	150	
Otago, 5 cs.	24	
Dried Blood—		
Mauritius, 50 t.	£500	
Flowers of Sulphur—		
Mosel Bay, 6 t. 14 c.	£80	
Guano—		
Malaga, 25 t.	£197	
Manure—		
Salobrena, 146 t. 13 c.	£1,168	
Rica, 97 18	921	
Libau, 252 15	678	
Treport, 11	66	
Gothenburg, 219 18	602	
Demerara, 7	78	
Mauritius, 305 18	1,550	
Nitric Acid—		
Shanghai, 1 t.	£15	
Oxalic Acid—		
Yokohama, 10 c.	£15	
Kobe, 5	8	
Potash Salts—		
Townsville, 5 t.	£611	
Delagoa Bay, 7 7 c.	890	
Potassium Bichromate—		
Oporto, 10 c.	£27	
Potassium Chlorate—		
Boston, 2 t. 10 c.	£176	

Potassium Cyanide—

Delagoa Bay, 2 cs.	£10
Shanghai, 11 c.	26
Saltpetre—	
Limon, 1 t. 5 c.	£27
Auckland, 10	11
Sheep Dip—	
Algoa Bay, 4 t. 3 c.	£80
Launceston, 50 cs.	50
Monte Video, 3 t. 16	75
Delagoa Bay, 9	22
Bombay, 330 dms.	76
Soda—	
Algoa Bay, 2 t.	£67
Demerara, 16 c.	4
Soda Ash—	
Sydney, 26 t.	£122
Soda Crystals—	
E. London, 1 t. 2 c.	£4
Sydney, 108 8	287
Canterbury, 15	9
B. Ayres, 1	3
Soda Salts—	
New York, 3 t. 1 c.	£75
Sodium Bicarbonate—	
Barbadoes, 1 t. 5 c.	£10
Auckland, 1	7
Nelson, 1	7
Algoa Bay, 1 2	11
Lisbon, 1	8
Sodium Sulphate—	
Ghent, 60 t.	£90
Sodium Sulphide—	
Constantinople, 17 cks.	£35
Sulphur—	
E. London, 100 pkgs.	£68
Sulphuric Acid—	
Natal, 21 cs.	£21
Singapore, 10 dms.	11
Mauritius, 50 cbs.	47
Superphosphate—	
Lyttleton, 99 t. 2 c.	£317
Mauritius, 120 15	396
Tartaric Acid—	
St. Petersburg, 2 c. 4 pkgs.	£34
Nelson, 1 t.	6
Auckland, 5	27
B. Ayres, 4	22

LIVERPOOL.

Week ending July 12th.

Alum—		
Montreal, 7 t. 7 c.	£37	
Varna, 3 15	18	
Malta, 19	5	
Samsoun, 2 12	12	
Rio de Janeiro, 2 4	13	
Oporto, 5	98	
Volo, 2 10	75	
Porto Alegre, 1 7 2 q.	17	
Alexandretta, 3	18	
Alum Cake—		
Calcutta, 6 t. 8 c. 3 q.	£20	
Alumina Sulphate—		
Rio de Janeiro, 2 t. 1 c.	£20	
Boston, 1 1 1 q.	30	
Pasages, 10 4	35	
Ammonia—		
Valparaiso, 5 c.	£15	
Ammonium Carbonate—		
Hamburg, 10 c.	£16	
Sydney, 10	18	
Ammonium Chloride—		
Trieste, 1 t. 3 c. 2 q.	£34	
Samsoun, 11 2	19	
Constantinople, 8	11	
Syria, 2	5	
Hamburg, 5	8	
Alexandria, 1	34	
Oporto, 6	10	
Genoa, 1 4 1	25	
Stockholm, 10	17	
Smyrna, 1	33	
Trebizonde, 5	3	
Barcelona, 2 3 3	69	
Philadelphia, 30 12 3	725	
New York, 5 1 3	124	

Ammonium Sulphate—

Antwerp, 48 t.	£636
Barbadoes, 50 2 c.	663
Valencia, 30 1 q.	420
Odessa, 304 10 3	3,998
Hamburg, 5 1	67
Shanghai, 575	7,605
Las Palmas, 40 7	550
Arsenic—	
B. Ayres, 2 t.	£41
Wellington, N.Z., 10	150
Dunedin, 1	15
Asbestos—	
Rio de Janeiro, 1 cs.	
Barytes—	
Montreal, 6 cks.	
Bleaching Powder—	
Ancona, 35 cks.	
Bombay, 8 cs.	
Boston, 828	
Corunna, 7	
Genoa, 32	
Messina, 10	
Montreal, 52	
New York, 542	
Oporto, 50	6 brls.
Philadelphia, 56	
San Sebastian, 70	
Stockholm, 42	
Baltimore, 184	
Bilbao, 2	
Calcutta, 50	
Chicago, 90 pkgs.	
Havana, 21	
Naples, 91	
Rio de Janeiro, 10	
Boracic Acid—	
Montreal, 1 t. 13 c. 2 q.	£65
Havre, 5 1 1	41
Antwerp, 18 1	33
Borax—	
B. Ayres, 2 t. 9 c.	£71
E. London, 1	30
Santiago, 5	7
Santander, 3	86
Rotterdam, 7 14 1 q.	234
Antwerp, 25 2	375
Kobe, 1 4 1	36
Cienfuegos, 9	13
Copenhagen, 1 3 2	32
Calcium Chloride—	
Rangoon, 3 t. 2 c.	£7
Carbolic Acid—	
Brisbane, 4 c.	£7
St. Johns, N.F., 1 t. 3	46
Genoa, 9	32
New York, 12 8	554
Odessa, 2 15	124
Caustic Potash—	
Chicago, 19 c.	£24
Boston, 3 t. 11	80
Hong Kong, 3	6
Caustic Soda—	
Amsterdam, 6 brls.	
Bahia, 70 dms.	
Barcelona, 340 10	
Boston, 176 89 cks.	
Cadiz, 12	
Corunna, 4 27	
Gefse, 40	250 kgs.
Iquique, 30	
La Guayra, 30	
Malaga, 70	
Montreal, 30 10	
Odessa, 100	
Pasages, 200	
Philadelphia, 50 50	5 cs.
St. Petersburg, 100	
San Francisco, 125	
San Sebastian, 155	
Seville, 320	12
Talcabuan, 35	
Trinidad, 20	
Tunis, 10	
Valencia, 60	
Wilmington, 150	
Yokohama, 200 kgs.	
Bari, 91	
Batavia, 40	
Bilbao, 12	

Calcutta, 170	Shanghai, 1 18	Yokohama, 5	Soda—	Yokohama, 50 cs.
Catania, 65	Sierre Leone, 200 6	Adelaide, 1 15	Soda Alkali—	
Ceara, 30	Teneriffe, 15	Antwerp, 105	Galatz, 40 brls.	
Chicago, 220 140 bxs.	Arroyo, 1	Bahia, 4 10	Odessa, 170	
Cincinnati, 61	Cabenda, 60	Boma, 11 3	Toronto, 40	
Detroit, 24	Constantinople, 100	Buguma, 40	Genoa, 37	
Evansfield, 50	Havana, 6	Calcutta, 1,733		
Fiume, 60	Jamaica, 3	Cameroon, 55 3		
Hamburg, 14 6	Kingston, Jam., 235	Canada, 27	Soda Ash—	
Hobson's Bay, 70	Lisbon, 21 42	C. C. Castle, 25	Antwerp, 2 cks. 200 bgs.	
Leghorn, 75	Matanzas, 1	F. London, 8 18	Calcutta, 20 100 k	
Lisbon, 50	Monrovia, 14 15 2	Ghent, 80	Copenhagen, 19 90	
Malta, 18	Opobo, 17	Guayaquil, 2 4	Genoa, 8	
Melbourne, 35		Monrovia, 17	Ghent, 27 brls.	
Naples, 47	Painters' Colours—	New York, 50	Havre, 2	
New York, 595 120	Alexandria, 5 cks. 34 dms. 20 brls.	Pictou, 700	Leghorn, 30	
Rangoon, 14	Bahia, 10 kgs. 2 cs.	Quebec, 26	Lisbon, 17	
Riga, 18	Baltimore, 95 35 150 8	St. Johns, 25	Maranham, 32	
Scutabaya, 18	Bombay, 1	St. John's, N. B., 600	M. Video, 25	
Tampico, 100	Boston, 1	San Francisco, 74	Montreal, 15	
China Clay—	Brantford, 3 2 4	San Juan del Sur, 50	New York, 381 1,160	
Barcelona, 25 t. 5 c.	B. Ayres, 9 142 71 87 2 bxs.	Sette Kroon, 1 10	Oporto, 57	
Boston, 300		Valparaiso, 1	Piræus, 6	
Calcutta, 68 10	Cienfuegos, 50	Saltcake—	Riga, 139	
Gothenburg, 10	Corral, 4	Bari, 100 t. 18 c. £225	Rotterdam, 300	
Citric Acid—	E. London, 150	Saltpetre—	San Francisco, 227	
Calcutta, 2 cks. £33	Hamburg, 7 12 2 dms.	Cadiz, 5 c. 1 q. £6	Santander, 22	
Sydney, 5 c. 41	Lima, 4 62 cs.	Wilmington, 1 t. 3 3 25	Seville, 6	
Coal Products—	Limon, 1 tce.	Para, 19 2 22	Singapore, 20	
Aniline Colours—	Magog, 4 20 kgs. 4 40	Gr. Canary, 1 21	Venice, 22	
Salonica, 6 cs.	Malta, 300	Ceara, 1 23	Wilmington, 130	
Shanghai, 100	Manaos, 30	Larnaca, 2 42	Baltimore, 20 1,968	
Benzol	Montreal, 50	Sheep Dip—	Boston, 142 1 377	
Malta, 3 cs.	Nassau, 3 30 10	Punto Arenas, 1 t. 2 c 2 q. £40	B. Ayres, 50	
Pitch	Para, 3	R. Ayres, 2 4 62	Ceara, 20	
New York, 8 cks.	Philadelphia, 30	Calcutta, 1 13 2 35	Philadelphia, 218 800	
Tar	St. John's Nfd, 2	Size—	Portland, M., 32	
Accra, 20 brls.	Talchuan, 20	Copenhagen, 4 cks.	Rio de Janeiro, 50 brls.	
Guayaquil, 50 dms.	Addah, 9 cs.	Soap—	Rosario, 100	
Sherbro, 20 brls.	Antofagasta, 7 4	Accra, 40 bxs.	Valparaiso, 10	
Cobalt Oxide—	Beyrout, 15 20	Akassa, 56		
Valencia, 1 c. £35	Colon, 11 50	Alexandria, 20	Soda Crystals—	
Copperas—	Galatz, 40	Anamaboe, 25	Kingston, Ont., 50 kgs.	
Larnaca, 3 t. 1 q. £5	Ibrail, 40	Assinee, 76	M. Video, 50	
Smyrna, 4 18 c. 9	Leghorn, 40 6	Axim, 20	Palermo, 7 brls.	
Copper Sulphate—	Matadi, 9 dms.	Barbadoes, 600	Philadelphia, 821 100 cks.	
Galatz, 10 c. £9	Newcastle, 25	Batavia, 7,000	Adelaide, 67	
Venice, 5 t. 80	New Orleans, 200 9 cs.	Bonny, 50	Boston, 560	
Rangoon, 10 10 110	New York, 20 220	Callao, 14	New York, 140	
Leghorn, 2 9 2 q. 40	Rio Grande do Sul, 20	Cameroon, 120	Quebec, 100	
Bordeaux, 25 3 9 400	Rio de Janeiro, 70	Cape Town, 1,656	San Francisco, 334 kg	
Messina, 3 9 2 55	Santiago, 6 cks. 8	Columbo, 5 cs.		
Odessa, 5 76	Savanilla, 1 8	Constantinople, 300	Sodium Bi-Arsenate—	
Vigo, 2 6 2 78	Valparaiso, 11	Copenhagen, 30	Naples, 2 cks.	
Valparaiso, 5 80	Vera Cruz, 20 4 pkgs.	Demerara, 825	Sodium Biorate—	
Genoa, 10 18 2 174	Paraffin Wax—	Gibraltar, 310	Montreal, 20 brls.	
Brindisi, 11 1 173	Para, 25 cs.	Gr. Canary, 230	Sodium Bicarbonate—	
Lisbon, 14 3 168	Rio de Janeiro, 24 dms	Hong Kong, 801	Amsterdam, 9 cks.	
Singapore, 5 87	Phosphorus—	Jersey, 40	Antwerp, 4	
Disinfectants—	Kobe, 10 cs. £129	Landana, 40	Bremen, 20 10 kgs. 1 brl	
Bombay, 1 t. 5 c. £15	Potassium Bichromate—	Loania, 140	Callao, 2	
Calcutta, 5 1 2 q. 108	Rio de Janeiro, 13 c. 2 q. £29	Manaos, 1,540	Copenhagen, 10 38	
Flowers of Sulphur—	Potassium Carbonate—	Mauritius, 2,510	Dunkirk, 20	
Vera Cruz, 1 t. £8	Chicago, 6 c. £7	Mosel Bay, 101	Genoa, 75	
Iron Oxide—	Rio de Janeiro, 10 1 q. 10	Nassau, 10	Hamburg, 75 7	
Maranham, 2 t. 6 c. £5	Potassium Chlorate—	New York, 590 22 2 cks.	Leghorn, 5 15	
Iron Sulphate—	Moscow, 1 t. 10 c. £78	Old Calabar, 1,500	Lisbon, 20	
Smyrna, 22 brls. £8	Porto Alegre, 1 10 94	Para, 1	Malaga, 15	
Samsoun, 3 t. 5 c. 1 q. £6	Lisbon, 2 2 6	Port Natal, 1,192 45	Nantes, 50	
Magnesium Chloride—	Riga, 2 10 159	St. Lucia, 193	Naples, 170	
Montreal, 19 t. 11 c. £104	Boston, 6 5 361	Teneriffe, 445	New York, 381 300 33	
Magnesium Sulphate—	St. Petersburg, 5 5 296	Trieste, 4	Salonica, 20	
Pt. Elizabeth, 5 kgs.	New York, 7 10 459	Trinidad, 250 1	Toronto, 5 100	
Rio de Janeiro, 20	Philadelphia, 2 10 151	Valparaiso, 9	Tunis, 30	
Manganese—	Shanghai, 2 10 142	Algoa Bay, 235 1	Vera Cruz, 6 cs.	
Algoa Bay, 5 t. 9 c.	Rotterdam, 1 5 72	Antwerp, 55 5	Calcutta, 750	
Manganese Oxide—	Christiania, 4 248	Benin, 100	Frederickton, 100	
Hamburg, 13 c. 2 q. £8	Hamburg, 2 114	Boston, 2	Galatz, 40 12	
Manure—	Gothenburg, 7 10 441	Brussels, 400	Guayaquil, 99	
St. Nazaire, 60 t. 1 c. 2 q. £160	Gottenland, 2 10 140	Cabenda, 20 237 250 bdl.	Havre, 50	
Hamburg, 20 10 80	Alexandria, 2 10 36	C. C. Castle, 2	Hiogo, 50	
Las Palmas, 3 27	M. Video, 10 36	Copenhagen, 20	London, Ont., 8	
Mineral White—	Naples, 1 56	E. London, 1,250 84	Melbourne, 20	
Montreal, 10 cks.	San Paulo, 1 15 110	E. St. Louis, 1 ck.	Montreal, 100	
Muriatic Acid—	Hiogo, 25 1,371	Fernando Po, 46	Odessa, 450	
Maranham, 1 t. 5 c. £6	Potassium Prussiate—	Genoa, 40 50	Quebec, 100	
Ochre—	Calcutta, 9 c. £40	Hamburg, 30	St. Petersburg, 250	
St. Johns, 35 kgs.	Rosin—	Iquique, 25	San Francisco, 250	
Paint—	Hamburg, 1 t. 19 c. £24	Jamaica, 7	Singapore, 9	
Bilbao, 21 dms.	Trieste, 4 48	Las Palmas, 1,022	Valparaiso, 30 125 bxs	
Cadiz, 40	Salt—	Malta, 20	Wilmington, 20 bgs.	
Callao, 97 kgs.	Assinee, 12 t. 10 c. 2	M. Video, 2	Sodium Carbonate—	
Coquimbo, 6 cks.	B. Ayres, 34 15	Montreal, 53	Boston, 214 brls.	
Curacao, 50 1 2 cs.	Cape Town, 28 12	Pt. Elizabeth, 1,100 60	Rotterdam, 50	
Genoa, 12	Iceland, 249	Quebec, 1	Barcelona, 20 cks.	
Havre, 12 44	Kingston, Jam., 5	Rangoon, 700 619	Rio de Janeiro, 2	
Lagos, 44	Melbourne, 311	Rotterdam, 175	Sodium Chlorate—	
La Plata, 60 37	Montreal, 1,050	St. Johns, Nfd, 50 2	Hamburg, 125 kgs. 102 cks 20 brl	
Malta, 6	Mussera, 10	St. Thomas, 105 2	Gothenburg, 2	
Maranham, 6	Portland, Or., 200	Savanilla, 2	Rotterdam, 10	
Rosario, 3	Rio de Janeiro, 9	Shanghai, 2,952	Sodium Hyposulphite—	
St. Johns, 112 16	Rotterdam, 121 100 cs.	Sierra Leone, 100	Passages, 7 cks.	
Seville, 8 brls.	Sydney, 444 10	Singapore, 139	Antofagasta, 10 brls.	
			Calcutta, 1 t. 4 c. 1 q. 1	

Sodium Prussiate— Calcutta, 4 cks.		
Sodium Silicate—		
Barcelona, 35 brls. 50 cks.		
Calcutta, 12		
Cienfuegos, 8		
Madeira, 6		
Malaga, 12		
Passage, 20		
Sourabaya, 20	67 dms.	
Varna, 30		
Bilbao, 20		
Boston, 100		
Lisbon, 32		
New York, 100 kgs.		
Sodium Sulphate— Rio de Janeiro, 20 kgs.		
Sulphur—		
Cera, 1 t.		£7
Cañadello, 15 c. 2 q.		8
Boston, 200		772
Montreal, 20		80
Philadelphia, 80		310
Iquique, 20	16 2	136
Calao, 1	17 2	12
Tannic Acid— Maranham, 2 c.		£12
Tartaric Acid— Sydney, 10 c.		£53
Antofagasta, 4		30
Pin Crystals— Valencia, 5 c. 2 q.		£17
Turpentine— Hong Kong, 50 dms.		£29
Alexandria, 3 dms.		
Copenhagen, 10 brls.		
Varnish—		
Cape Town, 2 cs. 1 ck.		
Genoa, 1 dm		1 brl.
Leghorn, 7		
Malaga, 2		
Antofagasta, 1		
Calcutta, 2		
Heelva, 1		4 bxs.
Kingston, Jam., 10		
Manilla, 10		
Maravia, 2		
Montreal, 10		4
White Lead— Middletown, 100 kgs.		
Wood Spirit— Calcutta, 200 gals.		£125
Zinc Sulphide— New York, 56 t. 17 c.		£744

HULL.

Week ending July 8th.

Alkali— Stettin, 17 cks. 100 bls.		
Ammonium Sulphate— Hamburg, 502 bgs.		
Rotterdam, 200		
Beaching Powder— Stettin, 366 cks.		
Castle Soda— Danzig, 221 dms.		
Helsingfors, 13	6 cks.	
Hango, 93	7	
Liban, 103		
Stettin, 32 cs. 8		
Wyburg, 32 cs. 8		
Chemicals (otherwise undescribed) Antwerp, 24 cs.		
Bordeaux, 20		
Bremen, 2		
Bombay, 1,090 cks.		
Copenhagen, 1	30 3 pkgs.	
Danzig, 8	10 216 pkgs.	
Gothenburg, 75	10	145 kgs.
Hamburg, 100		
Kurrachee, 11		
Konigsberg, 90	48	
Rotterdam, 2	2	
Stockholm, 94	40	
Stettin, 94	40	
Cottonseed Oil— Antwerp, 200 c.		
Bordeaux, 3		
Bremen, 151		
Christiania, 269		
Copenhagen, 172		
Gothenburg, 70		
Rotterdam, 1,500		
Creosote— Gothenburg, 150 cks.		
Dyestuffs (otherwise undescribed) Danzig, 1 ca. 10 cks.		
Hamburg, 1		
Rotterdam, 25		

Linseed Oil—

Bergen, 6 c.		
Bombay, 597		
Christiania, 446		
Christiansand, 27		
Copenhagen, 34		
Drontheim, 62		
Hamburg, 100		
Helsingfors, 85		
Kurrachee, 20		
Rotterdam, 238		
Stavanger, 40		
Painters' Colours— Antwerp, 45 cks. 296 pkgs		
Amsterdam, 3	2 cs.	
Bergen, 2		
Bordeaux, 5	77 412	
Bombay, 1	36 110 dms.	
Christiania, 4		
Copenhagen, 1		
Danzig, 9		
Drontheim, 5		21 pks.
Flushing, 1		
Hamburg, 6	4	
Helsingfors, 4		
Konigsberg, 11		
Rotterdam, 6		94
Rouen, 28		
Stockholm, 26	7	
Stettin, 26	7	
Pitch— Antwerp, 414 t.		
Helsingfors, 22		
Salt— Copenhagen, 4 dms.		
Helsingfors, 2 cs.		
Size— Flushing, 23 cks.		
Soap— Jersey, 5 cs.		
Tar— Amsterdam, 100 cks.		
Christiania, 150		
Copenhagen, 7		
Danzig, 3		
Rotterdam, 5		
Varnish— Bordeaux, 3 cks.		
Bombay, 125 cs.		
Danzig, 5		
Gothenburg, 6		
Helsingfors, 10		
Wyburg, 1		

GLASGOW.

Week ending July 13th.

Ammonia— Hamburg, 999 bgs.		£1,112
Coal Products— Benzol Hamburg, 26 dms.		£266
Creosote Oil Christiania, 20 cks.		£10
Stockholm, 20		
Bordeaux, 417 t. 10 c.		618
Pitch Bombay, 163		£163
Valparaiso, 135 t.		150
New York, 48	14 c.	78
Tar Stockholm, 10 brls.		£5
Hamburg, 120		50
Tar Oil Hamburg, 50 brls.		£30
Copperas— Bombay, 19 t. 8 c.		£36
Copper Sulphate— Bordeaux, 114 t.		£1,924
Cottonseed Oil— Hamburg, 30 brls.		£134
Fiume, 4 t. 1 1/2 c.		96
Dyestuffs (otherwise undescribed) Norway, 2 cks.		£8
Iodine— Stockholm, 1 ck.		£16
Lead Acetate— Bombay, 4 t. 8 c.		£63
Linseed Oil— Chili, 2 t. 1 1/2 c.		£54
Valparaiso, 2 1 1/2		54
Bombay, 4	15	126
Singapore, 4		89
Malta, 1	18 1/2	43
Litharge— Stockholm, 5 cks.		£15

Paint—

Chili, 8 t. 18 1/2 c.		£180
Bombay, 7	5	45
Valparaiso, 4	3 1/2	52
Calcutta, 1	5 1/2	32
Shanghai, 2	9 1/2	74
Japan, 1	3 1/2	22
New York, 9	3 1/2	170

Painters' Colours—

Paraffin Wax— Peru, 1 t. 17 1/2 c.		£56
Bilbao, 1	19 1/2	53
Hamburg, 83 cs.		235
Italy, 8	12 1/2	240
Fiume, 16	8 1/2	366
Antwerp, 6	17	168

Potassium Bichromate—

Italy, 2 t. 10 1/2 c.		£99
Rotterdam, 25 cks.		382
Antwerp, 1	4 1/2	48

Rosin Oil—

Montreal, 2 t. 3 1/2 c.		£21
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Salt—

Valparaiso, 6 t. 5 1/2 c.		£72
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Sheep Dip—

Chili, 6 t. 15 c.		£216
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Soap—

Chili, 2 1/2 c.		£20
New York, 12 t. 14		207
Montreal, 2	6 1/2	30

Sodium Bichromate—

Italy, 6 1/2 c.		£11
Antwerp, 4 t. 1 1/2		130

Sodium Nitrate—

Japan, 2 t. 1/2 c.		£197
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Sulphuric Acid—

Bombay, 14 t. 15 c.		£86
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Tallow—

Antwerp, 12 t. 2 c.		£40
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White Lead—

Shanghai, 2 t. 14 1/2 c.		£45
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TYNE.

Week ending July 8th.

Alkali— Antwerp, 2 t. 3 c.		
Amsterdam, 11	12	
Rotterdam, 2	9	
Copenhagen, 6		

Alum—

Christiania, 1 c.		
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Ammonia—

Barcelona, 11 c.		
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Ammonia Alkali—

Barcelona, 13 t. 19 c.		
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Ammonia Ash—

Aalborg, 10 t.		
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Ammonium Chloride—

Odessa, 10 t.		
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Ammonium Sulphate—

Hamburg, 50 t.		
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Anthracene—

Rotterdam, 20 t. 17 c.		
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Antimony—

Montreal, 4 t.		
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Arsenic—

Barcelona, 1 t. 19 c.		
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Barytes—

Hamburg, 112 t.		
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Bleaching Powder—

Stockholm, 6 t. 7 c.		
Antwerp, 15	4	
Hamburg, 45	8	
Bergen, 5	2	
Aalborg, 9	19	
Drontheim, 10	5	
Amsterdam, 33	15	
Constantinople, 4	10	
Rotterdam, 10	12	
Copenhagen, 21	5	

Caustic Soda—

Gefle, 3 t. 2 c.		
Stockholm, 5	13	
Antwerp, 9	11	
Hamburg, 35	2	
Montreal, 14	10	
Christiania, 1	2	
Amsterdam, 7		
Odessa, 52	11	
Mariopol, 100	2	
Copenhagen, 10	10	

China Clay—

Barcelona, 10 t.		
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Copperas—

Constantinople, 1 t. 3 c.		
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Linseed Oil—

Antwerp, 1 t. 3 c.		
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Litharge—

Stockholm, 3 t.		
Hamburg, 2	12 c.	
Montreal, 10	1	
Amsterdam, 1	1	
Copenhagen, 1	11	

Magnesia—

Antwerp, 2 c.		
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Magnesium Sulphate—

Aalborg, 10 t.		
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Manganese—

Constantinople, 14 c.		
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Carlsrona, 23 t. 16 c.

Antwerp, 280		
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Ochre—

Christiania, 13 t. 14 c.		
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Oxide of Lead—

Barcelona, 5 t. 11 c.		
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Paint—

Antwerp, 9 c.		
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Soda—

Gefle, 5 t. 7 c.		
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Soda Ash—

Stockholm, 10	15	
Montreal, 70	1	
Christiania, 5		
Aalborg, 27	2	
Constantinople, 8	3	
Rotterdam, 37	6	
Gothenburg, 5	5	
Norrkoping, 22	12	

Soda Crystals—

Pomaron, 2 t. 12 c.		
---------------------	--	--

Sodium Hyposulphite—

Constantinople, 1 t. 4 c.		
---------------------------	--	--

Sodium Silicate—

Odessa, 16 t. 18 c.		
---------------------	--	--

Sulphur—

Antwerp, 15 t. 1 c.		
---------------------	--	--

Superphosphate—

Copenhagen, 95 t. 14 c.		
-------------------------	--	--

Tallow—

Hamburg, 14 c.		
----------------	--	--

White Lead—

Stockholm, 6 t. 6 c.		
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Montreal, 25	7	
Copenhagen, 2	14	
Pomaron, 12		

GOOLE.

Week ending July 5th.

Alkali—

Dunkirk, 30 dms.		
------------------	--	--

Benzol—

Antwerp, 96 cks.		
------------------	--	--

Chemicals (otherwise undescribed)

Hamburg, 5 cks.		
-----------------	--	--

Coal Products (otherwise undes.)

Boulogne, 32 cks.		
-------------------	--	--

Dyestuffs (otherwise undescribed)

Antwerp, 1 ck.		
----------------	--	--

Manure—

Boulogne, 31 bgs.		
-------------------	--	--

Pitch—

Antwerp, 252 t.		
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GRIMSBY.

Week ending July 8th.

Chemicals (otherwise undescribed)

Antwerp, 1 ck.	
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PRICES CURRENT.

WEDNESDAY, JULY 19th, 1893.

PREPARED BY MESSRS. HIGGINBOTTOM AND CO., 116, PORTLAND STREET, MANCHESTER.

The values stated are F.O.R. at maker's works, or at usual ports of shipment in U.K. The price in different localities may vary.

Acids:—				£	s.	d.					£	s.	d.		
Acetic, 25 % and 40 %	per cwt	7/-	10/6				Lime, Acetate (brown)	per ton	5	17	6				
Glacial	"	50/-					" (grey)	"	10	0	0				
Arsenic S.G., 2000°	"	0	14	6			Magnesium (ribbon and wire)	per oz.	0	2	3				
Fluoric	per lb.	0	0	3 3/4			" Chloride (ex ship)	per ton	2	7	6				
Muriatic (Tower Salts), 30° Tw.	per bottle	0	0	10			" Carbonate	per cwt.	1	17	6				
(Cylinder), 30° Tw.	"	0	3	0			" Hydrate	per ton.	17	0	0				
Nitric 80° Tw.	per lb.	0	0	1 3/4			" Sulphate (Epsom Salts)	per ton	2	19	0				
Nitrous	"	0	0	1 3/4			Manganese, Borate	"	17	15	0				
Oxalic	nett	0	0	3			" Borate	per cwt.	2	12	6				
Phosphoric, 1750°	"	0	1	2 1/2			" Ore, 70 %	per ton	4	5	0				
Picric	"	0	1	0			Methylated Spirit, 61° O.P.	per gallon	0	2	0				
Sulphuric (fuming 50 %)	per ton	15	10	0			Naphtha (Wood), Solvent	"	0	3	0				
(monohydrate)	"	5	10	0			" Miscible, 60° O.P.	"	0	4					
(Pyrites, 168°)	"	3	0	0			Oils:—								
(free from arsenic, 145°)	"	1	5	0			Cotton-seed	per ton	24	0	0				
Sulphurous (solution) S.G. 1025	"	1	6	0			Linseed	"	22	10	0				
Tannic (pure)	per lb.	0	1	2			Lubricating, Scotch, 890°—895°	"	7	5	0				
Tartaric	"	0	0	11 1/2			Petroleum, Russian	per gallon	0	0	4				
Arsenic, white powdered	nett	per ton	13	15	0		" American	"	0	0	3 1/2				
Alum (loose lump)	"	5	2	6			Potassium (metal)	per oz.	0	3	7				
Alumina Sulphate (pure)	"	5	0	0			" Bichromate	nett	per lb.	0	0	4 1/2			
Aluminaferric	"	2	10	0			" Carbonate, 90% (ex ship)	per ton	16	15	0				
Aluminium	per lb.	0	4	0			" Chlorate	per lb.	0	0	8				
Ammonia, Anhydrous	"	0	1	2			" Cyanide, 98%	"	0	2	0				
" 880=28°	per lb.	0	0	2 3/4			" Hydrate (Caustic Potash) 80/85 %	per ton	21	10	0				
" =24°	"	0	0	2			" (Caustic Potash) 75/80 %	"	20	10	0				
Carbonate	nett	0	0	3 1/2			" (Caustic Potash) 70/75 %	"	20	0	0				
Muriate	per ton	21	10	0			" Nitrate (refined)	per cwt.	1	2	6				
" (sal-ammoniac) 1st & 2nd	per cwt.	37/-	35/-				" Permanganate	per cwt.	3	5	0				
Nitrate	per ton	42	0	0			" Prussiate Yellow	per lb.	0	0	9 1/2				
Phosphate	per lb.	0	0	10 3/4			" Sulphate, 90 % (ex ship)	per ton	9	15	0				
Sulphate (grey) London	per ton	13	5	0			" Muriate, 80 % (do.)	"	8	0	0				
" (grey) Hull	"	13	5	0			Silver (metal)	per oz.	0	2	9				
Aniline Oil (pure)	per lb.	0	0	6			" Nitrate	"	0	2	17				
Aniline Salt	"	0	0	5 1/2			Sodium (metal)	per lb.	0	3	4				
Antimony	per ton	45	10	0			" Carb. (refined Soda-ash) 48 %	nett	per ton	5	17	6			
" (tartar emetic)	per lb.	0	1	0			" (Caustic Soda-ash) 48 %	"	4	15	0				
" (golden sulphide)	"	0	0	10			" (Carb. Soda-ash) 48 %	"	4	15	0				
Barium Chloride	per ton	7	10	0			" (Carb. Soda-ash) 58 %	"	4	10	0				
" Carbonate (native)	"	3	10	0			" (Soda Crystals)	"	2	17	6				
" Sulphate (native levigated)	"	45/-	75/-				" Acetate (ex-ship)	"	16	10	0				
Bleaching Powder, 35 %	nett	8	0	0			" Arseniate, 45 %	"	12	0	0				
" Liquor, 7 %	"	3	10	0			" Chlorate	per lb.	0	0	9				
Bisulphide of Carbon	"	11	15	0			" Borate (Borax)	net, per ton.	29	0	0				
Chromium Acetate (crystal)	per lb.	0	0	6			" Bichromate	per lb.	0	0	3 1/2				
Calcium Chloride	per ton	2	5	0			" Hydrate (77 % Caustic Soda) (f.o.b.) net pr. ton	lots	11	0	0				
China Clay (at Runcorn) in bulk	"	17/6	to 35/-				" (74 % Caustic Soda)	"	10	10	0				
Coal Tar Products and Dyes:—							" (70 % Caustic Soda)	"	9	10	0				
Alizarine (artificial) 20 %	net	per lb.	0	0	8		" (60 % Caustic Soda)	"	8	10	0				
Magenta	"	0	3	9			" (60 % Caustic Soda, cream) (f.o.b.)	"	8	5	0				
Anthracene, 30 % A, f.o.b. London	per unit	per cwt.	0	1	2		" Bicarbonate	"	6	10	0				
Benzol, 50 % nominal	per gallon	0	1	5			" Hyposulphite	"	6	10	0				
" 50/90	"	0	1	4			" Manganate, 30%	"	16	0	0				
Carbolic Acid (crystallised 40°)	per lb.	0	0	7			" Nitrate (95 %) ex-ship Liverpool	per cwt.	0	10	0				
(crude 60°)	per gallon	0	2	0			" Nitrite, 98 %	per ton	27	10	0				
Creosote (ordinary)	"	0	0	1			" Phosphate	"	15	0	0				
" (filtered for Lucigen light)	"	0	0	1 1/4			" Prussiate	per lb.	0	0	7 1/4				
Crude Naphtha 30 % @ 120° C.	"	0	0	7			" Silicate (glass)	per ton	5	7	6				
Grease Oils, 22° Tw.	per ton	2	5	0			" (liquid, 100° Tw.)	"	4	5	0				
Pitch, f.o.b. Liverpool or Garston	"	1	5	0			" Stannate, 40 %	per cwt.	3	0	0				
Solvent Naphtha, 90 % at 160°	per gallon	0	0	11			" Sulphate (Salt-cake)	per ton.	1	4	0				
" Lucigen" and "Wells" Oils	"	0	0	1 1/4			" (Glauber's Salts)	"	1	10	0				
Copper	per ton	42	15	0			" Sulphide	"	8	10	0				
" Sulphate	"	16	0	0			" Sulphite	"	6	5	0				
" Oxide (copper scales)	"	42	0	0			Strontium Hydrate, 100%	"	8	10	0				
Glycerine (crude)	"	13	0	0			Sulphocyanide Ammonium, 95 %	per lb.	0	0	7 1/4				
(distilled S.G. 1250°)	"	43	0	0			" Barium, 95 %	"	0	0	5				
Iodine	nett, per oz.	0	0	9			" Potassium	"	0	0	7 1/4				
Iron Sulphate (copperas)	per ton	1	12	6			Sulphur (Flowers)	per ton.	8	0	0				
" Sulphide (antimony slag)	"	2	0	0			" (Roll Brimstone)	"	6	10	0				
Lead (sheet) for cash	"	11	0	0			" Brimstone: Best Quality	"	4	2	6				
" Litharge Flake (ex ship)	"	13	0	0			Superphosphate of Lime (26 %)	"	2	7	6				
" Acetate (white	"	25	15	0			Tallow	"	27	10	0				
" brown	"	17	10	0			Tin (English Ingots)	"	87	0	0				
" Carbonat: (white lead) pure	"	20	0	0			" Crystals	per lb.	0	0	6 1/4				
" Nitrate	"	20	0	0			Zinc (Spelter)	per ton	17	12	6				
							" Chloride (solution, 96° Tw.)	"	5	15	0				

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323.

SATURDAY, JULY 29, 1893.

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CHARITY BEGINS AT HOME.

FOR many years the inhabitants of Manchester and Salford have with patience suffered the inconveniences which must necessarily fall to the lot of those who live in the neighbourhood of a river which for long enough has been little better than an open sewer, and which forcibly reminds us that, despite the refining influences of advanced civilization, we are in some matters very little in advance of the ancient Romans with their *cloaca*.

The knowledge that before long the Ship Canal will be at work, and the savoury water in the Salford docks kept in a state of agitation by the screws of the vessels moving in these waters, seems to have churned the feelings of the inhabitants to such an extent that on Tuesday last an indignation meeting was held to protest against the prevailing and prospective condition of affairs.

After such a long period of comparative apathy, the desire to act—and that quickly—seems to have been most vigorously aroused. This can in one way easily be accounted for, because just now the iniquities of the past are being enjoyed to the full, since the collection of the solid putrifying matters which have for so long been covertly turned into the river both up and down the stream, has become a simple matter (the Ship Canal Company having kindly provided a gigantic sewage works), with the natural production of a compound stink—very much compound. It is only to be expected that those nearest to the source of trouble are most eager to vindicate themselves, and to shift the burden on to other shoulders; and it is nothing new to learn that Salford is immaculate, and every one else to blame, especially the Mersey and Irwell Joint Committee.

Fortune and public opinion are proverbially fickle, and they are to a degree. When a Joint Committee was proposed to deal with this watershed, there was a general apprehension lest the newly-constituted authority should ride the high horse and act too precipitately. Tolerant was the cry. Now, the tables are turned. To suggest tolerance even is little short of a crime. A sweeping reform is the order of the day, and consequently resolutions, embodying ideas which have already been tried or suggested, abound. So much for public opinion. To our mind it would be little short of a miracle if the Joint Committee did do all it was told it should, seeing that there are so many conflicting interests at work, some of the worst polluters being represented on the committee.

It certainly is unfortunate that there should be any cause to warrant such poignant remarks being made concerning the desirability of the "lodestar" of the committee giving more attention to immediate home duties, rather than to the needs of Mecca; but, on the other hand, it would perhaps be as well for those who raise the shout to bear in mind that nobody is impeccable, and a multitude of blacks do not make a white.

The progress made by the Joint Committee has, undoubtedly, been slow, and is likely to be, as far as regards the Local Sanitary (?) Authorities, on account of the Local Government Board; but it would be rash to say that nothing is being done to try and "worry up" that body of imperturbable imperturbables.

Now that actual action, however, is so cogently called for, we must admit we are rather surprised that the Joint Committee does not emulate the significant and decisive action taken by their sister committee in the Ribble Watershed. Here in a case where a well-known chemical precipitant, capable of giving 60 per cent. purification, was being regularly used in a properly constructed sewage works, this committee not being altogether satisfied with the effluent, thought fit to take action on the ground, afforded by the wording of their Act, that the "best practicable means" were not being adopted; since the precipitation was not supplemented in accordance with the advice of chemical experts with filtration.

Why should not the Joint Committee, taking the bull by the horns, accept the challenge which has been thrown out, and proceed, in like manner to the Ribble Committee, to prosecute those who are not actually using the "best practicable means," or in other words, efficient precipitation followed by filtration. It would establish the *bona fides* of the committee, and inspire the confidence which it is necessary should be reposed in them. They have, moreover, a favourable precedent in the fact that the County Court judge took the same view as their sister committee in a similar case; while, lastly, the issue will either bring credit to the challengers, or snap once for all the string which has been so persistently harped upon by those who, having hollowed out a puddle, think they have sunk a well.

SEWAGE DISPOSAL SCHEMES.

LOCAL GOVERNMENT INQUIRIES.

FAILSWORTH.

IN connection with the application of this Local Board for sanction to borrow £27,000. for the disposal of sewage, etc., an inquiry was held last week by Colonel M. Ducat, R.E., at the offices of the Local Board. Mr. Lomax, engineer and surveyor to the local authority, in giving his evidence stated that every care had been taken in the selection of the site, and in determining the manner in which the works shall be carried out. In 1889, the first scheme for the disposal of the sewage from the district was submitted to the Local Government Board, who refused to give their sanction on the ground that the area of the land to be provided was inadequate. The Board now proposed to go to another part of the township, Millhouses, where they had obtained two sites, 11½ acres in all, for the purposes of works for sewage disposal. At the present time, the district was only indifferently sewered, and it was proposed to lay tributary and main concentrating sewers, so as to collect the sewage from the entire district and carry it to one outfall. The total estimated cost of the sewers, including ten per cent. for contingencies, was £14,479. 14s. 3d. The arrangement would be such that the storm overflows would not operate until the storm water assumed the proportion of about nine times the normal dry weather flow of sewage. The outfall works would consist of a system of tanks and filter beds. The estimated cost of the works, including an allowance for contingencies, was £8,705. 18s. 6d. The precipitant to be used would be the best known, and the filtering medium would be polarite in an ordinary sand filter. The works, however, would be so arranged that any kind of precipitant could be used. The Board was considering whether to press the sludge or take it direct on to land, and the Local Government Board were asked to leave the question open for the time being. Mr. Lomax appealed to the Inspector to allow the Board a term of fifty years for repayment, which even then would mean an addition of sevenpence in the pound to the rates. The site of the outfall works was subsequently visited by the Inspector.

RAMSBOTTOM.

On the day prior to the Failsworth inquiry, last week, the same inspector held an inquiry at Ramsbottom regarding the Local Board's

application to borrow £30,000. for the purpose of dealing with the sewage within its district. Mr. Nuttall, engineer to the scheme, gave particulars of the proposed treatment of the sewage. Mr. Newman, of the firm of Messrs. Grundy, Kershaw, and Co., solicitors, Manchester, watched the inquiry on behalf of several local manufacturers, who desired to avail themselves of the Board's sewers for the disposal of their waste water. At the close of the inquiry, the Inspector, accompanied by members and officials of the Board, drove to the site of the proposed sewage works at Summerseat.

OPPOSITION TO THE MACCLESFIELD DRAINAGE SCHEME.

At the last meeting of the Sanitary Committee of the Macclesfield Corporation, the Town Clerk reported that a petition had been lodged in the House of Lords against the provisional order giving the Macclesfield Corporation power to acquire land on the Adlington Hall estate for the purpose of the main drainage of the borough. The petition was signed by Mrs. Legh, of Adlington Hall, whose petition against the scheme was heard last week but one before a Select Committee of the House of Commons; Mrs. Julia Catherine Wright, Mottram Hall; Mr. James Thomas Dorrington, Bonis Hall; and four of the tenants on the Adlington estate. A letter was also read from Messrs. R. Brown and Co., solicitors, Stockport, offering, on behalf of Mrs. Legh, a certain portion of land on her estate for the purpose of dealing with the sewage of Macclesfield by chemical treatment. The Committee, however, refused the offer, and instructed the Town Clerk to take all necessary steps with a view to supporting the scheme already adopted in the House of Lords.

THE AUDENSHAW CASE.

Last week, the Audenshaw Local Board were proceeded against in the Ashton-under-Lyne Police Court, by the Mersey and Irwell Joint Committee for alleged pollution of the Irwell. For the Audenshaw authorities, it was contended that the action ought to have been taken against the Manchester authorities, and the case was adjourned till October 11, to allow of a conference with the Manchester city authorities with a view to the treatment of the Audenshaw sewage carried through the City Corporation culverts into the Gore Brook.

THE BACUP CASE: CORPORATION FINED.

The Bacup Corporation were summoned before the Bacup Police Court on Wednesday, 26th inst., by the Mersey and Irwell Joint Committee for polluting the Irwell. The Town Clerk pleaded guilty, and consented to an order by which the Corporation was fined 5s. and £5. costs, and undertook to carry out works within eighteen months to prevent the further pollution of the river.

USE OF ANTHRACITE AS A FUEL.

ONE of the objections to the use of anthracite coal as a fuel for various purposes has been its wastefulness. On this account, at the instigation of the Pennsylvania Legislature, Mr. Drifton has been making some experiments upon the economic consumption of this fuel. One of the chief sources of waste he found to be due to neglectfulness of consumers in utilising the smaller classes of fuel, such as "breezes." In connection with the consumption of these he found in the first place that the ashes produced by a steam jet are never as low in carbon as those produced by the fan; that is, an appreciably larger per cent. of the carbon is utilised by the fan blast. This appears to be due to the fact that when the carbon in the ash over the grate is reduced to a certain point the steam damps it somewhat, and it ceases to burn sooner than it does when dry air only is blown through it. He also proved that with the fan blast the rate of combustion per square foot per hour is greater than with the steam jet.

It was found that where a bed of coal was ignited and burned out, the percentage of carbon in the ash is much less than where coal is successively added to the burning mass. In practice it is not generally possible to allow the bed to burn out sufficiently before adding the cold, unignited coal. The result is a damping down of the fire, which causes the ash to cease burning sooner than it would do if there were no reduction of temperature and checking of the draft due to the adding of the coal.

There seems to be no doubt that the introduction of steam into the ash pit decreases materially the tendency of the coal to clinker on the grate, in comparison with the fan blast or natural draft. It also changes the colour, volume, and character of the flame, and increases the distance that the flame extends beyond the bridge wall. In many cases it is not practical, or at least it is very difficult, to burn the smaller sizes of coal without the steam jet, on account of the clinkering. This effect of steam on clinkering is probably due to the fact that the steam, to a certain extent, moistens the ash close to the grate and prevents the ash from reaching there as high a temperature as it would with dry air. It is also probable that the decomposition of the steam into carbonic oxide

and hydrogen, which takes place to a certain extent, and which, of course, is accompanied by a reduction of temperature, tends to prevent clinkering. The decomposition of the steam, accompanied by the formation of carbonic oxide and hydrogen, will probably account for the difference in the flame referred to.

A careful study of the burning of culm—that is, the burning of small coals with more or less dust in them—in these and other experiments, seemed to show that in almost all cases it is accompanied by a very high percentage of carbon in the ash, which analysis showed, in some cases, reached 58 per cent. Unless special precautions are taken to prevent it, a large portion of the fine coal runs down through the grate. When the culm gets red hot it acts almost like dry sand and works its way into the ashpit, thus increasing largely the percentage of carbon. Where coal has to be transported any distance, the value of the culm at the mines being very small, it is probable, from the investigations made, that it would be cheaper to remove the dust and transport only the larger coal.

It has been found that the percentage of iron pyrites that occurs to a greater or less extent in all coals, increases very rapidly with the smallness of the coal. This is due to the fact that the iron pyrites occur generally in thin layers or incrustations on the coal. These thin layers are broken off and pulverised in the preparation and handling of the coal, and therefore are found to a much greater extent in the very small coal. It is, of course, well known that the presence of iron pyrites in fuel is very undesirable, as it generates sulphurous acid, and has a tendency to destroy the grates or other ironwork connected with the boilers, besides in many cases increasing the tendency to clinker. It was further shown that while the fan blast produces the best ash and gives a more perfect rate of combustion, yet in many cases it is more advantageous to use the steam blower on account of the clinkering, which may cause very serious trouble. In certain localities, particularly in cities, the noise of the steam blower is sometimes a disadvantage.

While it is not positively demonstrated, it is thought that the question of mixing small coals from different veins or different localities is a matter of importance. It would appear that sometimes two coals, each of which, when burned separately, gives reasonably satisfactory results, when mixed together, clinker and give trouble, probably because the ash of the combined coals forms a much more fusible silicate than either of the ashes separately. In conclusion, it is considered that the combustion of the small anthracite is more perfect when the coal remains undisturbed, or as nearly as possible in the condition in which it was put in the fire, instead of being turned over, so that the partially consumed and unconsumed coal are mixed together.

ABOUT LUMINOUS PAINT.

By J. E. SMITH.

NEARLY every one has heard of luminous paint—the sulphide of calcium—but it is probable that comparatively few persons know much about the behaviour of this interesting compound.

When of good quality it is quite white as seen by reflected light, but the light that is emitted by it in the dark immediately after exposure to the direct rays of the sun is quite blue, and the emitted light is of a lavender hue directly after subjection to the action of ordinary diffused daylight. Both of these colours, however, in a dark room, rapidly fade into a white light that is more luminous. A greater luminosity is produced by a short and near exposure to an ordinary artificial light, or by being placed near a window about sunset on a rainy day. The direct rays of a bright full moon falling on it for several minutes have very little effect, making it barely visible in a dark room.

After ten seconds exposure to good diffused daylight, which is as effective as an exposure of ten hours, this substance will give out a practical light for ten or twelve hours, and its luminosity will not entirely disappear in less than 30 hours. This great difference in the times required for the absorption and the emission of light is quite remarkable, and makes it seem as if the light emitted were many times greater than that absorbed.

When luminous paint of poor quality is removed from light to darkness the light emitted by it fades rapidly and in a few minutes becomes of a dull reddish or smoky colour, much like that of the moon during its total eclipse.

A temperature of 300° to 400° will not put calcium sulphide into a luminous condition, though after exposure to light an increase in temperature of 25° will make it much more luminous. That this is not a conversion of heat into light is shown by the fact that if kept at a high temperature it will become non-luminous in a shorter time. As might be expected, a lowering of temperature by ether or other volatile liquid will diminish the luminosity.

This luminous condition is not conveyed from particle to particle like heat. If a quantity of the dry powder be exposed to the light all

day, on breaking through the surface the interior will be found to be non-luminous, the light having affected the outer portion to a depth of perhaps a sixty-fourth of an inch. If a bottle partly filled with the dry powder be revolved in the light until the whole mass has become luminous, and then be set away in the dark, the interior loses its light as rapidly as the surface, but in doing so does not help the surface to glow any longer or more brightly. What becomes of the interior? Does it change into heat? Perhaps some physicist with facilities for delicate measurements can answer these questions. This non-conductivity of light admits of the production of some impressive effects. If the hand, with fingers spread, be held against a flat surface of luminous paint while exposed to the light, a black hand on a luminous field will be seen. If, however, the painted surface, while acted on by light, be well covered with a card having an opening the size and form of a hand, and then moved about in a dark room, nothing will be seen but a white, floating spectre hand. Forms of various articles may be thus shown; but perhaps the most pleasing effect is produced by a piece of lace drawn tightly over the paint while in the light.

Some text books on chemistry say that calcium sulphide is luminous when recently prepared. These books were probably written before the manufacture of this compound was well understood.

As a matter of fact, the luminous property of this substance is known to have remained unimpaired for more than five years.

THE GAS SUPPLY OF LONDON AND LEEDS.

LONDON.

THE quality of the gas supplied to the City of London for the week ending July 15, 1893, was on the whole good. According to the report of Mr. W. J. Dibdin, chemist and superintendent gas examiner to the London County Council, the tests made at the various testing stations showed one deficiency in illuminating power, and that against the South Metropolitan Gas Co. The following figures have been prepared from the report, and show the average composition of the gas calculated on the mean test:—

Company.	No. of districts tested.	Illuminating power (in stand. sperm candles).	Sulphur. Grains in 100 cb. ft.	Ammonia. Grains in 100 cb. ft.	Sulphuretted hydrogen.
		Mean average.	Mean average.	Mean average.	
Gas Light and Coke Co.	14	16'35	10'48	0'37	Nil.
South Metropolitan Gas Co.	6	16'68	10'76	0'73	Nil.
Commercial Gas Co.	2	16'30	5'40	0'40	Nil.

The standard gas supplied by these companies should have an illuminating power of 16 sperm candles, and contain not more than 22 grains of sulphur and 4 grains of ammonia per 100 cub. ft. of gas, on an average of three days, with a pressure of one inch between sunset and midnight, and six-tenths of an inch between midnight and sunset.

LEEDS.

According to the report of Mr. T. Fairley, F.I.C., gas examiner for Leeds, the proportion of total sulphur contained in the Leeds gas during the month ended July 13th, 1893, has averaged 20'39 grains per 100 cubic feet. The following are the results of tests made at the works in grains per 100 cubic feet.

Place.	Date when Tests were made.		Total Sulphur.	Ammonia.	Carbonic Acid.	
	June, 1893.	July, 1893.			Weight.	Volume.
Meadow Lane...	17. 22.	1. 5. 10.	17'60	'45	40'75	0'05
New Wortley	16. 23. 30.	7. 12.	24'44	1'34	57'05	0'07
York Street	15. 21. 28.	8. 13.	14'95	'39	32'60	0'04
Average at Works	..	..	20'39	'85	48'90	0'06
Average at East Parade	..	..	20'54	1'27	57'05	0'07

During the month the average illuminating power of the Leeds gas tested at 17, East Parade, the tests being calculated to a uniform consumption of 5 feet per hour, and corrected for variations in temperature and pressure to a temperature of 60° Fahr. and a barometric pressure of 30 inches, has been in standard candles (burning 120 grains of sperm per hour):—Standard argand, 24 holes, 18'6; standard batwing, 19'1; Sugg's illuminating power meter, 18'7.

WATER POWER FOR ALUMINIUM PRODUCTION.—The Pittsburg Reduction Company has, it is said, contracted with the Niagara Falls Power Company for 6,500 E.H.P., for use in a new aluminium plant to be erected at Niagara Falls.

Parliamentary Jottings.

THE CONDITION OF THE SHIP CANAL DOCKS.

IN the House of Commons on Thursday last, Mr. Holland asked the President of the Local Government Board whether his attention had been called to a meeting held in Salford on the 25th inst. to protest against the polluted condition of the water in the Ship Canal docks, and if so, whether the Local Government Board would do what they could to expedite the works for the purification of the river Irwell?

Mr. H. Fowler: My attention has not been called to the meeting at Salford to which reference is made, but I may state that the Local Government Board is dealing as promptly as possible with the cases which came before it with regard to works required for the purification of the river Irwell. I will do my best to prevent any avoidable delay.

THE ILLUSTRATIONS TO THE ABRIDGMENTS OF PATENTS.

In answer to Sir B. Samuelson, Mr. Mundella said his attention had been called to the complaints of the poor character of the illustrations to the Abridgments of Patents, and he regretted that they were too well founded. The Board of Trade would consider the best means of improving the illustrations in the future.

THE LONDON COUNTY COUNCIL BILL.

In the House of Commons, on Tuesday, the Lords' amendments to the London County Council (General Powers) Bill were brought up and considered.

Mr. Stuart moved that the House disagree with the Lords' amendment dealing with the representation of the London County Council on the Conservancy Boards of the Thames and the Lea. He said the Bill had come from the other House in a condition which he could only describe as mutilated. One of the most important clauses which the Lords had struck out provided for the representation of the Council on the Conservancy Boards. The question of the proper management of the rivers adjacent to London was, he submitted, a matter of the utmost importance to the life and health of the inhabitants of the capital.

After considerable discussion, Sir F. Dixon-Hartland said he would not oppose the amendment if he understood that the Government pledged itself to secure representation of all the authorities interested on the Board.

Mr. H. Fowler said he could not pledge the Government on this matter, as the bill was not a Government measure. He only made the suggestion he did as *amicus curie* between all parties; but he had no doubt that if the object aimed at could not be obtained in one way it could in another. (Hear, hear.)

The amendment of the Lords was then disagreed with without a division. A number of the other amendments made by the Lords were also disagreed with. A committee was appointed to draw up reasons to be assigned to the Lords for disagreeing with their amendments to the bill.

ESTIMATING RESIN IN SOAP.

THOUGH the tests for the presence of resin in soap are in themselves satisfactory, the quantitative methods are by no means so; in fact up to about two years ago there was no really reliable method in existence. About that time, however, Twitchell introduced his process, which was a great advance on the old ones. In a recent paper read before the Society of Chemical Industry, Dr. J. Lewkowitsch added a further contribution to this subject by discussing such methods as he considered the best, and pointing out, from his own experiments, that even the latest perfected method was by no means as perfect as it might be.

Of the old methods, that of Gladding was perhaps one of the best in principle. The results obtained were, however, so unreliable that the author did not go further with it, but turned his attention to the various modifications of Gladding's original process. The first which he took was Hübl's and Stadler's modification. By this process the mixture of fatty acids and resin acids, previously dissolved in absolute alcohol, is neutralized with potash, and the acids precipitated as silver salts from the strongly diluted solution by silver nitrate. The silver salts are to be filtered off, protected from sunlight, dried at 100° C. in an oven,

and exhausted in a Soxhlet extractor by means of dry ether. The ethereal solution should be yellow or light brown, but not dark brown; it is filtered, if necessary, the resin acids set free by hydrochloric acid, and weighed.

Though this process was experimented with on a fairly extensive scale, anything but satisfactory results were obtained, the author finding there seemed to be in nearly all cases a reduction of the silver salts (especially when the percentage of resin in the soap was high), which was noticeable by the filter-paper case in the Soxhlet extractor assuming a dark colour. A further confirmation of this view being afforded by the fact that in many cases—and occasionally in analyses agreeing pretty closely with the theoretical results—the ethereal solution contained resin acids only, but no silver salts, as was evidenced by the absence of a precipitate of silver chloride.

Grittner's and Szilazi's Modification was next tried. By this method the soap is dissolved in 80% alcohol, neutralised, if necessary, with ammonia (of course, the same method applies to the fatty acids), and precipitated with a 10% alcoholic solution of calcium nitrate. Calcium palmitate and stearate are precipitated completely, calcium oleate to the greatest extent, whilst calcium resinate remains in solution. On adding silver nitrate to the filtrate, and diluting it strongly, the silver salts are precipitated; they are filtered off and treated with ether, according to Gladding's directions. The correction to be made, according to Grittner and Szilazi, is 0.016 gm. for every 10 c.c. of ether used. The results obtained were not sufficiently good to encourage the author to try any other modification, though good results are said to attend the combination of the Barfoed's and Gladding's processes.

The author, therefore, turned his attention to Twitchell's method, which is based upon the knowledge that aliphatic acids acted upon with hydrochloric acid gas in their alcoholic solution are transformed into their ethylic ethers, and further, on an observation made by Fückiger, that on passing hydrochloric acid gas through an alcoholic solution of colophony abietic acid is obtained. This important difference led Twitchell to the working out of a new method that gave him, to use his own words, "results" which he thinks "are impossible by any of the methods now in use." Though a great advance, as already stated, this process is not infallible, a very exhaustive series of tests having demonstrated to the author's satisfaction that the results are not sufficiently reliable to enable a correct calculation to be made of the amount of resin used in the stock of a given soap. Taking first the volumetric method, six brands of American resin gave fairly good results, and a combining equivalent closely agreeing with Twitchell's was obtained, the variations being due to the unsaponifiable oils the resin contained.

Though the average combining equivalent agrees pretty closely with Twitchell's, a simple calculation shows that for the same amount of resin used different results will be obtained according to the brand that has been worked. As a rule, this will not be known, and as commercial brands vary in their composition not inconsiderably from time to time, it is evident that on using the volumetric method an uncertain factor is introduced with the assumed combining weight, which may lead to an error of as much as 2 per cent.

From his experiments the author found that the results on the whole were too high, on account, it was thought, of small quantities of fatty acids escaping etherification. Unfortunately, this explanation is negated owing to the results obtained by the gravimetric way (the first stage of which is precisely similar to the volumetric) giving results which are too low. The author therefore conjectured that part of the resin undergoes decomposition under the severe action of the hydrochloric acid, giving rise to the formation of acids of lower molecular weight, and perhaps also of products of condensation that are calculated as resin acids.

By the gravimetric method, the mixture of ethylic ethers and resin acids (obtained by passing hydrochloric acid through an alcoholic solution) dissolved in the petroleum ether is shaken with a very dilute solution of potash, which is supposed to dissolve only the resin acids: the resin soap thus obtained is decomposed and the separated resin acids are weighed.

By this method the results obtained were too low, the author pointing out that he himself, like Twitchell, obtained highly satisfactory results when he omitted to carry out the process fully, as Twitchell had done, simply dissolving the resin acids directly after their treatment with hydrochloric acid, in ether; but when carried out in full the results were low. The author concludes his paper by giving a number of experiments showing his efforts to account for the loss; but though he shows that certain of the decomposition products obtained by passing hydrochloric acid escape exhaustion with petroleum ether, he was unable so far to account satisfactorily for the remainder of the loss. By adopting the precautions his experiments had suggested, viz., exhausting the acid layer (in the petroleum ether extraction) with common ether and repeating the washing of the petroleum ether layer with a large excess of potash, better results were obtained.

Paper Makers' Column.

SPECIFIC GRAVITY OF BLEACHING POWDER SOLUTIONS.

BY CLAYTON BEADLE.

(Specially contributed.)

paper on the above subject, by Lunge and Bachofen, appearing in No. 321 of the *Chemical Trade Journal*, will be found of use to manufacturers. As, however, the table as it stands will little meaning to some practical men, I have taken the liberty of giving the specific gravity into degrees Twaddell, and the grams of chlorine per litre into pounds of bleaching powder per ten

By means of the following table a manufacturer can, at a glance, find the strength of any bleaching solution in terms of dry bleaching powder by simply gauging it with a Twaddell hydrometer.

Degrees Twaddell.	Pounds of bleaching powder per ten gals.	Degrees Twaddell.	Pounds of bleaching powder per ten gals.
0	Trace	120	10.23
5	0.40	130	11.06
10	.77	140	12.00
20	1.50	150	13.06
30	2.42	160	13.99
40	3.26	170	14.93
50	4.14	180	15.77
60	4.96	190	16.66
70	5.84	200	17.48
80	6.79	210	18.43
90	7.61	220	19.43
100	8.40	230	20.43
110	9.34		

percentage of bleaching powder is calculated on the assumption contains 35% available chlorine. Hitherto, the only basis that makers and other consumers of bleaching powder have had to go as far as I am aware, is the general understanding that a bleaching solution of 12° Tw. contains one pound per gallon, or a solution of 6° Tw. contains half a pound per gallon. But nowhere seen even this stated in print. The above determinations, calculated from the figures of Lunge and Bachofen, agree very closely with determinations made with solutions prepared on a large scale, with a solution made by dissolving one ton of bleaching powder in water to titrate such a solution with rapidity, it is best to take 10 c.c. and titrate 10 c.c. of this with $\frac{N}{10}$ arsenious. The number of c.c. used gives pounds of bleaching powder per gallon without calculation.

COLOURING PAPER ON ONE SIDE ONLY.

Process patented by Mons. F. Weyland for colouring paper on one side, consists in passing the paper, when sufficiently dry to allow being transferred without a felt, through a bath of the colour which is desired to impart to the paper. In order to avoid the colouring through the paper to the side which does not require it, it is necessary that the contact with the bath should be constant and regular.

In its passage through the machine the paper passes between drying rollers, and when the paper is sufficiently dry to prevent all fear of colour running, the paper is ready for the colour bath. In certain cases, however, it will be possible to place the colour bath directly before the first drying cylinder.

A vessel containing the colouring matter is placed under the paper as it passes through the machine. As the paper is tightly stretched it is necessary to pass it under rollers so as to bring the side which requires colouring in contact with the surface of the liquid in the bath. To this, three roller guides are used, arranged so that the lowest of these just brings the paper on to the level of the bath. As during the process of staining the paper the level of the solution in the bath is constantly becoming lower it is necessary to adopt some means of keeping the solution at a uniform height. The best method of so doing is to have more of the colouring solution than experience has shown to be necessary to steadily enter the bath, and to fit an overflow pipe to take off the excess, and so maintain a constant level. The chief advantage about this process is the ease and rapidity with which different colours can be employed, all that need be done being to change the bath through which the paper is passed, which can be done at will, and without stopping the machine.

THE OIL TRADE OF WEST AFRICA.

IN a report to the Colonial Office on the botany of Sierra Leone, Mr. Scott Elliot says that the export of palm oil and kernels forms by far the largest part of the West African export trade. In 1890 the value of the palm oil exported from Sierra Leone was £13,599, and of the palm kernels £107,827. The tree is more abundant further down the West African coast, and appears to prefer alluvial, often marshy, ground near the sea. It particularly seems to thrive on the rich soil of the mangrove accumulations. There are large numbers of palm trees in the Mahela district, where a factory once existed, and there are also a considerable number up the Scarcies River and in the lower part of the Limba district. It grows also on low sandstone or gneissose hills, but probably does not produce so much in such places as on the low-lying, rich alluvials. The palm is propagated from the offshoots that appear at its base, and these are said to begin in the second or fifth year, and are in full bearing about the 10th to 15th year. They continue producing for 60 years. A single tree yields from one to three gallons of palm oil, or, according to Semler, 16 litres annually, and this amount of oil will give from one-sixth to half a hundredweight of kernels. This would be a profit of from 2s. to 6s. a tree per annum, as about 300 gallons of palm oil give a ton of oil and about 2½ tons of kernels. Hence plantations of these trees should be profitable in time. It is, however, exceedingly difficult to get any trustworthy information, and the above, Mr. Elliot says, must be regarded as very approximate. The palms require no care, and are not, apparently, attacked by any injurious insects. The preparation is of a very rough and makeshift character; the fruits are thrown into a tank and left till decomposition begins. They are then boiled and afterwards pounded in a mortar. Probably 25 per cent. of the oil is lost in preparation.

TIPS FOR TRADERS.

AN EXHIBITION is being arranged at Vienna for 1894, during April, and May, and June. It is chiefly intended to foster the production of good, but cheap food.

GAS is to supplant paraffin oil at Loanda. The gas must be as good as that of Lisbon, and has to be supplied to the municipality for lighting purposes, and to ordinary consumers for use in stoves and motors, at 50 reis per cubic metre. As an illuminant for private use, its cost must not exceed 70 reis. (The English equivalents of the sums named may be calculated as ranging from twopence and a seventh to twopence two-thirds, and from threepence to threepence and eleven-fifteenths respectively.) The works have to be begun by March next, and completed in a period of two years from that date. There are 17,000 inhabitants.

MADRID is to be the scene of an International Exhibition from May to October, 1894. The exhibition will be divided into 14 groups. Chemicals and their manufacture, and electricity are both separate groups.

REFRIGERATING MACHINES are badly wanted in Asia Minor. Aleppo would be a good town at which to make a start. Though the cost of an installation is necessarily considerable, yet the ice can be sold at a decidedly remunerative price.

PETROLEUM has been found in Persia, near Semnan. The production of the springs, it is thought, will be sufficient to supply the local consumption of North Persia.

COPPER ORE has also been found in the same locality.

THE SUMATRA PETROLEUM WELLS are, it is affirmed, being worked now by a Dutch syndicate, which anticipates being able to supplant Russian and American petroleum in the Singapore market.

TARIFF CHANGES.

There are from time to time many alterations in the Customs' regulations abroad, which it is as well for those trading in chemicals, oils, paints, and raw materials to be acquainted with. The following are some of the most recent changes of interest to the foregoing:—

CELLULOSE GOODS entering Russia are liable to a duty of 35 copecks gold per pood. [Pood—36 lbs.]

MINERAL OILS are admitted into France from Russia, owing to recent negotiations, at a minimum tariff, in return for which Russia reduces her tariffs for certain French goods.

AMMONIACAL GAS LIQUOR, concentrated by redistillation so as to contain a higher percentage of ammonia and ammonium sulphides than such liquor first contained, is dutiable under the United States New Tariff (section 4) to a duty of 20 per cent. *ad valorem*.

CHROME IRON, an alloy of iron and chromium imported in casks in lumps, is subject to a duty of 20 per cent. as an unwrought metal.

POSTAL CHANGES.

Parcels are now accepted at any post office for transmission to the Republic of Liberia. The postage is—For a parcel not exceeding 3 pounds in weight, 1s. 10d. For a parcel exceeding 3 pounds and not exceeding 7 pounds, 3s. 6d. For a parcel exceeding 7 pounds and not exceeding 11 pounds, 5s. 2d. Parcel mails will be made up at Liverpool on every alternate Saturday.

Embossed envelopes of the "A" size, bearing a penny stamp, are now sold at the following *reduced prices* :—

One "A" envelope, 1¼d. Two "A" envelopes, 2¼d. Three "A" envelopes, 3½d. Four "A" envelopes, 4½d. Five "A" envelopes, 5½d. Ten "A" envelopes, 11d.

Packet of 20, 1s. 10d.

NOTICES.

LONDON AGENTS

Booksellers and Newsagents may now obtain supplies of

THE CHEMICAL TRADE JOURNAL

From

MR. JOHN HEYWOOD,

2, Amen Corner,

Paternoster Row, E.C.,

On usual trade terms.

FOREIGN REMITTANCES.

Owing to the inconvenience created by the various ways in which foreign subscriptions are remitted, we respectfully beg to inform subscribers that a *Crossed MONEY ORDER* is the most satisfactory method of remitting, both for them and ourselves. In the case of a Money Order, a letter advising us of same should always be sent, otherwise, owing to post-office formalities, much delay in tracing and acknowledging foreign remittances is inevitably entailed in this country.

Trade Notes.

OXALIC ACID POISONING.—Last week, an employee of the Singer Sewing Machine Company, residing at Bury, succeeded in committing suicide by poisoning himself with oxalic acid.

SUFFOCATED BY SAND.—A lad playing near a sand shoot, while a cargo of sand was being discharged, at the Pocket Nook Glass Works, St. Helens, last week, fell into the shoot, and, being drawn in by the suction, was buried and suffocated in some fifty tons of sand.

THE COAL CRISIS AND THE CHEMICAL TRADE.—Owing to the unsettled state of affairs in the coal trade, Messrs Brunner, Mond and Co. and The Salt Union, Limited, have warned their hands, numbering about 5,000, that they can only engage them from day to day, so that notice may be given to the men at any time.

MORE COKE OVENS.—The Washington Coal and Coke Co., at Uniontown, with a capital of £50,000., has taken over the business of John Newmeyer. In addition to 2,000 acres of coal land, the company has 450 acres of surface, and 75 completed ovens will be turned over to the company. Three hundred additional ovens will be built at once.

EXPLOSIONS OF DYNAMITE.—Four serious and fatal explosions of dynamite took place at the Ablon dynamite factory, near Honfleur, on Tuesday evening last. As the result of the explosions, the building was set fire to, the conflagration spreading and imperilling the stores containing the dynamite cartridges. Nine men were killed, and about twenty seriously injured.

POTATO DISEASE IN IRELAND.—The appearance of potato disease in various parts of Ireland is giving rise to considerable alarm. The outbreak has been chiefly in the north and south-west districts. Measures are being taken to counteract the disease by spraying the crop with solutions of sulphate of copper and other chemical preparations, with which experiments have been successfully made.

THE NORTH BRITISH WATER-GAS SYNDICATE.—A committee which has been formed to represent a section of the shareholders of

this syndicate, has, according to a contemporary, decided to resist amalgamation of the several water-gas companies, to press the action taken against the parent company with a view to secure the £12 now in hand, to refuse payment of any call, and to attempt to recover the money paid for patents.

DISCOVERY OF COAL AT COLORADO, U.S.A.—Reports from Archuleta county tell of some valuable discoveries of coal and co Graphite City, 35 miles from Durango, on the Piedres River. It is said that a natural vein of coke, 7 feet thick, and another 6 feet, has been uncovered. In the adjoining mountains there is said to be the coal that has ever been prospected in the East or West, and said far ahead of Pennsylvania for quality and for quantity.

A SHOCKING DEATH.—At the Caledonian Mineral Oil Company works, Lanark, on Wednesday last, John Dunbar, a stillman, who was to clean out the refuse from a still, opened the manhole of a full still by mistake. The gas escaping became ignited at the furnace, and Dunbar rushed into the open air enveloped in flames. He died immediately. His comrades could not assist him, owing to the inflammable condition of their clothing.

A PETROLEUM STORES ON FIRE.—About 6-30 p.m. on Monday night last, the paraffin oil stores of Messrs. Bell and Sons, Waterworks, Glasgow, caught fire, and had it not been for the exertions of sailors from the Royal Naval Dockyard, taking part in the naval manoeuvres, a disastrous conflagration would have resulted. In a short time, 200 barrels of oil had been removed, and the remaining barrels, some 20 in number caught fire. The property destroyed and injured were not insured.

PREPARING CEMENT CLINKER.—In order to improve the quality of the manufacture of Portland cement, a patent has been obtained which consists in sprinkling the layers of chalk and clay in the kiln with salt, or chloride of potassium, either in the solid or in solution. The reason for so doing is that the alkaline chloride is subsequently vaporised during the burning of the cement, and combines with silica in the clay, forming a clinker which only disintegrates with difficulty.

TREATING REFUSE PYRITES.—According to experiments made by Herrn. Blattner, and Köstner, gaseous hydrochloric acid passed over the refuse from copper bearing pyrites heated to the temperature, does not combine with the iron oxide present, though it attacks the copper, converting it into copper chloride, which can be separated by lixiviation with water, while a certain portion of the hydrochloric acid is decomposed, chlorine gas being given off. The process on a commercial scale is, we understand, contemplated.

CHARCOAL FOR CHICKENS.—Charcoal has a good many uses, even in this country, where it is not largely used as a fuel for considerable quantities. Its use in sugar refining is also well known. According to the legend, it was through a chicken alighting within a dirty feet on a sugar loaf that the process of sugar refining was discovered. Now charcoal can return the compliment, as it were, is a very valuable assistant in raising chickens, although as mentioned in poultry publications. It assists digestion, and corrects or prevents a multitude of evils. It need not be completely pulverised, but should be well broken up and placed in shallow pans or on bits of board, either near the coops, or in various places about the premises.

A MAGNETIC RIVER BED.—John Chinaman has a pretty reputation for tales, apart from the characteristic appendage attached to his cranium. In fact, such an adept is he at "drawing the bow" that many people are inclined to think he must be a descendant of Ananias. The following certainly tends to strengthen the supposition :—"The Chinese have a remarkable superstition about the Ch'u river, which is the local name on the border for the Chien River. A considerable trade in drugs is borne along this river, for which a special class of boats, composed of very light boards, fastened with wooden nails, are built. The natives say that the magnetic attraction of the bed of the river is so strong that were ordinary boats used the nails would be pulled out. Along the river banks iron is mined in a primitive fashion, and from geological evidence it is believed that iron ore is plentiful.

SARDINIAN MINING.—The condition of the mining industry in Sardinia appears to be very satisfactory. From the latest report of the consul at Cagliari it seems that the production of lead and zinc is increasing. Last year the total production of all metals was 1,000 tons, valued at £836,912., of which £523,080. was the value of the lead and zinc ore. The number of persons employed in mining was 11,820; the average daily wages of a Sardinian miner are 1s. 8d. Next in importance to zinc amongst the Sardinian metals is lead, the value of the production of which last year was £225,000. The greater part of the Sardinian metals go to Belgium. The coral fishing of Sardinia is gradually decaying. This is attributed to the exhaustion of the old coral reefs, and to the competition

inferior coral of Sicily, which is thrown on the market in enormous quantities and at a very low price.

A WRINKLE FOR SALT SHIPPERS.—The following item which originates from Liverpool, draws attention to the results which attended the recent attempt to ship crude Peruvian salt to Australia. It seems that someone was struck with a brilliant idea to the effect that it would be good business to send the rough crystal salt of Peru to Australia, and the first cargo, luckily escaping the 20s. duty, owing to the Customs decision that it was rock salt, there seemed the probability of a successful trade. This decision was, however, afterwards held to be erroneous, and when the Liverpool ship came with the next cargo £1. sterling was demanded as duty on every ton. Meanwhile the colonial salt merchants had sampled the article, and it was found to be absolutely worthless as a table salt, and the cargo had eventually to be sold at 5s. per ton, the Customs authorities allowing it to go duty free on condition that it was used for chemical purposes. The shipowners were, of course, mulcted in the difference between the agreed freight of 15s. and the market price in Sydney, and they very properly consider that the matter should be brought under the direct attention of shipowners. The future in store for Peruvian salt is apparently problematical, at any rate the colonists can only find a use for it in the manufacture of chlorine; and we should advise shipowners to consider well before allowing their vessels to be chartered in this new and unpromising trade.

Market Reports.

TAR AND AMMONIA PRODUCTS.

Benzol still keeps very flat, and even the coal strike cannot be depended upon to enliven the market, as, unfortunately, the English market is no longer the keystone of the position. The London market is stated to be dull at 1s. 5d. for both 90's and 50's, while the country markets are very dull at 1s. 4d. Anthracene remains *in statu quo*, and its price could be easily written from the office without entering the market at all. Pitch remains at old rates.

The sulphate market is very firm. From enquiries this week, it is apparent that wants cannot be kept back much longer, and buyers are doing all in their power to cover, without disturbing the market. On the other hand, sellers being so fully committed, demand increased prices for what little surplus they have for disposal. Sales have been made at £13. 7s. 6d. Hull and Liverpool, £13. 10s. Leith, London £13. 7s. 6d. Several sales have taken place at Leith, October-March, at £12. 5s., but these prices cannot be repeated, much higher rates being asked.

REPORT ON MANURE MATERIAL.

During the past week there has been continued enquiry for both phosphatic and nitrogenous material, but high prices demanded for the most part prevent business.

Florida phosphate rock, 75/80%, is held for 8½d. in cargoes c.i.f. to U.K., and price is readily obtainable for the continent. Hot-air-dried South Carolina River rock is firm at 6¼d., and 7d. is required for Peace River rock.

There would now be buyers of cargoes of River Plate bones for shipment at £4. 10s. for U.K. ports, but shippers still hold back. £4. 10s. ex quay, Liverpool, required for crushed Kurrachee bones. There have been sales of Bombay bone meal to a direct steamer port in the U.K., but it is doubtful whether the price would again be accepted. Good charring bones are worth £4. 2s. 6d. to £4. 5s. ex quay Liverpool.

Nitrate of soda remains quiet in all positions. From cargo on the way from port of call to Mersey, 9s. 3d. ex quay would be accepted, though 10s. required for immediate delivery ex store. Due cargoes, ordinary quality, are worth about 8s. 10½d., and September-November shipments about 9s. 1½d. per cwt. Refined cargoes of handy size are worth about 3d. per cwt. more.

Sales of home-prepared dried blood have been made at 10s. per unit free rails at works. There is nothing to report in other material.

MISCELLANEOUS CHEMICAL MARKET.

There is nothing of importance to report this week. Prices generally remain the same, and things are of the two rather quiet than otherwise. Bleaching powder is still in good demand, both for home and export—

prices are firm at £8. 10s., hardwood, f.o.b., and £8., softwood, f.o.r. Caustic soda continues to move more freely at former prices, viz.: 77%, f.o.b. Tyne, £11.; f.o.b. Liverpool, 74%, £10. 10s.; 70%, £9. 10s.; 60%, £8. 10s.; cream, 60%, £8. 5s., 10-ton lots and upwards. Unless the present difficulty in the coal trade is settled, higher prices in the near future are very probable. Soda ash still dull, and prices tend in buyers' favour. Chlorate of potash rather weaker at 8d. Sulphate of copper steady at £15. 15s. to £16., f.o.b. Lead salts rather quiet. Foreign white acetate £25. 10s., c.i.f. Nitrate £19. Ammonia salts are well maintained in price, and continue in good request. Muriate scarce at £22. 10s. to £23. Carbonate 3½d. to 3¼d. White powdered arsenic sells freely, and prices are firm at £13. 10s. to £13. 15s., at Garston, according to brand. Nitrate of soda nominally 9s. 9d. to 10s., market dull. Oxalic acid difficult to move at 3d. Sulphocyanides neglected. We quote ammonium 7d., barium 5d. per lb. There is no real change in carbolic acids; crude is selling at slightly lower rates for spot delivery, but prices for forward are firm. The quantity offering is but small; stocks are light. Crystals are still quoted high in comparison with present prices of crude. For 39/40% 6½d. to 7d. is asked.

LIVERPOOL OIL AND COLOUR MARKET.

WEDNESDAY.

OILS.—Palm oil, though continuing at the advanced rate, has gradually fallen in demand, and to-day the market is quiet, with but little business doing. Olive continues steady and in moderate request, prices ranging from £32. to £42. per tun a/c quality. Linseed having been brisk at the early part of the week, is, if anything, a shade easier, though price remains at 22s. 6d. per cwt. for Liverpool makes in export casks. Rape, refined Stettin, is still quoted 29s. per cwt. Cotton seed is the turn easier, but the market is quiet, quotations being 22s. 3d. to 24s. per cwt. for Liverpool refined. Castor oil is easier generally, and only small sales of good seconds Calcutta can be effected at 2½d. quay and 2½d. store. First pressure French is still held for 2½d. to 2¾d. Tallow is in fairly good demand without any change in values. Resin: common remains at 3s. 9d., and mediums are steady. Sales of fine have been made at 11s. 9d. cwt. Spirits of turpentine are in moderately good request at 21s. 9d. cwt. Petroleum is somewhat improved in demand, prices of American and Russian refined being unaltered.

COLOURS quiet and unchanged. Ochres: Oxfordshire, common, £10., medium, £12., best, £15.; Derbyshire, common, 40s.; medium, 50s., best, 60s.; Welsh, best, 70s., seconds, 50s., and common, 18s.; Irish, Devonshire, 40s. to 45s.; French, J.C., 55s. to 60s.; M.C., 65s. to 67s. 6d. Umber: Turkish quiet; Devonshire, 50s. to 55s. White lead, red lead, and oxide of zinc unchanged. Venetian red, £6. 10s. to £10. Cobalt: Prepared oxide, 9s. 9d.; black, 9s.; blue, 6s. Zaffres: No. 1, 3s. 6d.; No. 2, 2s. 6d. Oxide of iron: Common, £6.; medium, £10.; finest, £20. Zinc oxide, £23. to £25.

THE METAL MARKETS.

LONDON, WEDNESDAY.—Pig iron easy. Scotch warrants closed at 42s. 0½d. cash. Middlesbrough 35s. 6d. cash, and hematite 44s. 10½d. Copper, quiet: Chili bars, G.O.B.'s and G.M.B.'s closed at £42. 6s. 3d. to £42. 13s. 9d. cash, and £42. 15s. to £43. 2s. 6d. three months. Tin easier: Straits closed at £82. 5s. to £82. 15s. cash, and £81. 15s. to £82. 5s. three months. Australian £84. 5s. English ingots, £87. Lead, firm: Spanish, £9. 17s. 6d. to £10. English, £10. to £10. 5s. Silesian spelter: Ordinary, £17. 12s. 6d. Nickel 1s. 8d. Antimony, £38. 10s. Quicksilver: First hands £6. 17s. 6d.; second hands, £6. 11s. 6d. Copper shares: Cape, 1¼ to 1½. Copiapo, 1¼ to 1½. Libiola, 2¼ to 3. Mason and Barry, 1½ to 1¾. Rio Tinto, 14½ to 14¾; Tharsis, 4¾ to 4¾; Namaqua, ¾ to ¾.

WOLVERHAMPTON, WEDNESDAY.—The market continues disturbed by the coal situation. The interference with Staffordshire iron-works will, it is feared, be greater than was at first expected. Orders would only be taken to-day for immediate delivery, and advanced prices were asked. Galvanised sheets 7s. 6d. to 10s. above the recent minimum, and plain sheets fully 5s. Corrugated sheets quoted £11. Liverpool, and plain sheets, doubles, £7. to £7. 5s. at works. Lattens £7. 15s. to £8. Common bars £5. 10s. Pigs advanced; orders refused. Coal rising.

GLASGOW, WEDNESDAY.—Market easier. A moderate business done in Scotch at 42s. 1½d., 42s. and 42s. 0½d. cash; buyers 42s. 0½d. cash, sellers 42s. 1d. Middlesbrough done at 35s. 5½d. to 35s. 6d. cash; buyers 35s. 6d. cash, sellers 35s. 7d. Cumberland hematite buyers 44s. 10½d. cash, sellers 45s. 3d. Middlesbrough hematite buyers 43s. 3d. cash, sellers 43s. 6d.

THE LIVERPOOL MINERAL MARKET.

The mineral market continues to improve. Manganese stocks continue to be drawn upon, and slow arrivals, hence prices remain firm. Borate, 7d. per lb.; sulphate, £21. 10s.; oxalate, 1s. 6d. per lb.; chloride, £15., carbonate, £12. 10s., steady. Magnesite (raw lump) better demand; raw ground, £6. 10s., and calcined £12. 10s. Bauxite (Irish Hill brand): Shipments continue increasing, and prices much firmer; lump 20s., seconds 16s., thirds 12s. French chalk: The demand has again increased, with better prices ruling. Barytes: Carbonate is scarce; nuts, 72s. 6d. to 85s.; finest white sulphate is in demand. "Angel White," No. 1, 70s.; No. 2, 60s. to 65s.; No. 3, 45s. Pumicestone quiet. Iron ore flat, Bilbao, Irish, and Cumberland slow. Santander and manganiferous are quiet. Emerystone firm; No. 1 lump, £5. 10s. to £6.; smalls, £5. to £5. 10s. Fullers' earth: Best lump, 55s.; fine impalpable ground, £7.; "Emerald" ground, 80s. Scheelite, wolfram, tungstate of soda, and tungsten metal easier. Chrome ore: Large sales are being made at improved prices, with a good prospect for continued improvement. Antimony ore easier, at £11. 10s., and metal £43. to £45. Asbestos firm. Potters' lead ore, smalls, £10. 10s. to £11. Calamine strontia sulphate (celestine) quiet. Limespar steady, especially for English manufactured; old G.G.B. brand in demand at 50s. (ground). Felspar quiet. Fluorspar: Best quality scarce. Ferro-manganese slow. Plumbago: Spanish, £5.; best Ceylon lump at last quotations; Italian and Bohemian, £4. to £12. per ton; "Founders," £5. to £6.; Blackwell's "Mineraline," £10. French sand, 20s. to 22s. 6d. Ground mica, £45. to £50. China clay steady, common, 18s. 6d.; good medium, 22s. 6d. to 25s.; best, 30s. to 35s. (at Runcorn). Bog ore (oxide of iron): finest quality 25s. to 30s.

HULL PAINT, OIL, AND COLOUR REPORT.

TUESDAY.

OILS.—The continued disturbance of the labour market has a reflex influence upon all business, and the sooner masters and men can agree upon terms the better for all concerned. Quotations for linseed and cotton oils are generally easier; the former being about 5s. per ton lower, and the latter about 2s. 6d. per ton. The stock of cottonseed oil is exceedingly limited, and, no doubt, had the exports equalled the same figures as the same week last year, prices would have been much higher, for with so small stocks the market is very sensitive. The exports are—linseed oil 1,021 cwt. against 1,423 cwt. a year ago, and cotton oil 1,592 cwt. against 3,251 cwt., showing a decrease on the former of 402 cwt., and the latter a decrease of 1,659 cwt. The present quotations are:—Linseed oil easier, closing with sellers at 20s. 9d., naked, spot; July-August, 20s. 6d.; and September-December, 19s.; casks 17s. 6d., and barrels 22s. 6d. per ton extra. Cotton oil, refined, quiet at 20s. 10½d., naked, spot; July-August, 20s. 9d., sellers; November-April, 18s. 3d. Refined rape oil, in casks, 25s. 6d. per cwt. Fish oils, crude sperm, £36. to £50.; cod oil, coast, £17. 10s. to £20.; Newfoundland, £26.; herring oil, fine, bright, £16. 10s. per ton. Sod oil for curriers, £15. to £17. per ton. Castor and olive oils without change. Petroleum jellies, 26s. to 28s. per cwt.

CAKES.—Linseed cakes in fair request for the season: 95%, pure, £8. 15s. per ton; ordinary, £7. 5s. to £7. 10s.; Americans, £7. 15s.; Russians, £8. 10s. Cotton cakes continue steady, and in fair request: best makers, £5. 7s. 6d. spot, and £5. to £5. 2s. 6d. Nov.-March. Rape cakes £4. per ton.

PAINTS.—In these articles the trade continues satisfactory. The exports, however, are not so good as a year ago; also chemicals show a considerable decrease, the actual figures being for the former 689 packages against 1,815 packages; the latter being 1,368 packages against 4,081 packages. The present prices being:—Zinc oxide, £22 10s.; white and red lead without change; Venetian red, dry, £6. to £10. per ton; oxide of iron, £9. to £18. per ton. Paints ready mixed, in 1, 2, 7, and 14-lb. tins, 28s. per cwt. Enamels, 4s. 9d. doz. French ochre, 55s. to 60s. per ton. Fine linseed oil putty, £6. per ton.

THE COPPER MARKET.

Messrs Harrington and Co., in their fortnightly report dated Liverpool, July 18th, state: Charters for the past fortnight not being yet to hand are estimated at 1,000 tons, making the total quantity since 31st December, 11,100 tons, against 12,150 tons same time last year. Exchange 14½d.

When we issued our last copper report G.o.b.'s and G.m.b.'s were steady at £43. 7s. 6d. cash, and £43. 16s. 3d. three months, on the following day £43. 10s. and £43. 18s. 9d. respectively was touched,

but this slight advance was not maintained, and though about 100 tons have changed hands values declined till yesterday £42. 12 cash, and £43. forward was accepted. Prices during the past fortnight did occasionally recover a few shillings per ton, but only to do again the following day. We have to go back to October, 1887, find cash G.m.b.'s quoted £42. 12s. 6d., and at that time, on account of the weak state of the market, the visible supply showing 105,000 tons, three months' prompts were being sold ten shillings under the price of spot G.m.b.'s. To-day again these low prices ruled the market, and we close unsettled at £42. 8s. 9d. cash and 16s. 3d. three months.

The total stocks in Liverpool, Swansea, London, and Havre 45,753 tons, against 46,005 tons on the 30th June, showing a decrease of 252 tons for the fortnight. The stocks include about 2,100 tons copper sold, but not yet delivered to smelters. The visible supply the fortnight is 49,771 tons, against 49,570 tons for the previous night, showing an increase of 201 tons. The total deliveries for the fortnight are 4,450 tons. The stock of English G.m.b.'s in warehouse Liverpool, is 8 tons, against 9 tons on the first instant. Refined manufactured sorts are quiet, quotations being: tough cake £46 to £47.; best select £47. 15s. to £48. 5s.; Indian sheets £52. strong sheets £54.; and yellow metal sheets 4¼d. per lb. for the fortnight. The sales of Furnace material comprise—Liverpool 250 tons Portuguese ore, to arrive, at 8s.; 30 tons Portuguese per ton, to arrive, at 9s. per unit; 78 tons argentiferous copper ore 57 tons argentiferous Chili regulus, on private terms. At Swansea 200 tons Norwegian ore to arrive, at 8s. 3d.; 580 tons Mason's cipitate, old syndicate stock, sold as follows:—166 tons of 60 per cent. at 8s. 9d., 111 tons of 35 per cent. at 8s. 3d., and 303 tons of 2 cent. at 7s. 10½d. per unit; and a cargo 950 tons Quebrada ore 575 tons Quebrada regulus, on private terms.

TYNE CHEMICAL REPORT.

TUESDAY

In chemicals a fair business is being done, and stocks general very low. Large sales of sulphur for forward have taken place makers now quote £4. 5s. per ton. Soda crystals scarce a demand, and price has advanced at one or two points of consumption. Caustic soda steady and in demand.

Bleaching powder, softs, £8. 5s. per ton nett; hards, £8 per ton; caustic soda, 76/77%, £11. 0s. per ton, 70%, £9. 10s. per ton; recovered sulphur, 2 cwt. bags, £4. 5s. per ton; soda, 48%, £4. per ton, 52%, £4. 7s. 6d. per ton, 56%, £4. 15s. per ton; alkali, 36%, £3. 15s. per ton; white alkali, 48%, £4. 15s. per ton, 50%, £5. per ton, 52%, £5. 5s. per ton; hyposulphite of so 5-7 cwt. casks, £7. per ton, ditto, in 1 cwt. kegs, £7. 15s. per ton; silicate of soda, 75° Tw., £2. 15s. per ton, 100° Tw., £3. 10s. per ton, 140° Tw., £3. 17s. 6d. per ton; soda crystals, in casks, £2 per ton gross weight, in 2 cwt. bags, £2. 10s. per ton weight; chlorate of potash, 8¾d. per lb. less 6%; pearl hard £3. per ton nett; pure white sulphate of alumina, £4. 2s. 6d. per ton; blanc fixe, £7. 10s. per ton; chloride of barium, £7. 10s. per ton; carbonate of alumina, £28. 15s. per ton nett; aluminate of £33. 15s. per ton nett; in 5 ton lots, £28. 10s.; hydrate of bar £10. per ton nett.

South Durham Salt unaltered in price, but still rather especially fishery qualities.

COALS.—It is difficult at the moment to give any reliable indications owing to the uncertainty as to the action of the Northern miners though the belief prevails that the strike will not extend to Northumberland and Durham. The production of coal in these two counties being increased to the utmost limit, and stocks are being laid in wherever possible. For best Northumberland steam 10s. 6d. per ton is being asked. Coke firm, with a large demand.

WEST OF SCOTLAND CHEMICALS.

GLASGOW, TUESDAY

While there are no changes of price amongst the ordinary chemicals as yet, the market is nevertheless perceptibly improved, the increased inquiry due to fears that some of the English chemical may be brought to a standstill for the want of coal.

Sulphate of Ammonia is still very strong, and available stock much contracted. To-day, sellers reckon on getting £13. 5s. per ton for prompt, while buyers, if their needs are pressing, are to find that they are obliged to pay a little more. Forward business stands at about £12. 5s.

The mineral oil managers have met in council rather earlier than was expected on the question of the selling price of burning oil, against the coming consumptive season, and agreed to 5d. per gallon for standard No. 1 oil to Scotch buyers; lower brands are, of course, cheaper, and English sales for all brands will be conceded at something under the Scotch price. The overhead drop now made is ½d. per gallon, and already a fair bulk of contract-making has been carried through, consumers seeming satisfied with the concession. Some of the lubricating oils are weak and lower, but those used for gas making maintain position. Other paraffins are unchanged.

Chief prices current are:—Soda crystals £2. 15s. nett, Tyne; soda ash £5. 5s. nett, Tyne; refined alkali £6. 10s. nett, Tyne; alum in lump, £5. 10s. nett, Glasgow; caustic soda, white, 74° £10. 10s., 70/72° £9., 60/62° £8., and cream 60/62° £7. 15s., all nett Liverpool; bleaching powder £8. 5s. nett Tyne; salicake 24s.; borax, English refined, £30., and boracic acid, £37. 10s. nett, Glasgow; bicarbonate of soda, 5-cwt. casks, £6. 10s., and 1 cwt. casks £6. 15s. less 2½%, Liverpool; bichromate of potash, 4½d. nett, for Scotch and English deliveries (for export, 4½d. nett f.o.b. Glasgow); bichromate of soda, 3¾d. nett, for Scotch and English deliveries (for export, 3½d. nett, f.o.b. Glasgow); chlorate of potash 8¼d. less 5% Liverpool; nitrate of soda, 10s.; sulphate of ammonia, £13. 5s. to £13. 6s. 3d. f.o.b. Leith; sal ammoniac, first and second white, £37. and £35. less 2½% any port; sulphate of copper, £15. 15s. less 5% Liverpool; paraffin scale, hard and soft, 1¾d. per lb; paraffin wax 120° semi-refined 2¾d.; paraffin spirit (naphtha) 3¾d. a gallon; paraffin oil, burning, standard No. 1 grade, 5d. per gallon at works, for Scotch buyers (English sales about ½d. to 1d. lower); ditto (lubricating) 865° £3. 10s. to £3. 15s., 885° £4. to £5. 10s., and 890/895° £4. 15s. to £6. 5s. Week's imports of raw sugar at Greenock were 12,129 bags.

Reports of Companies.

THE SOUTH METROPOLITAN GAS COMPANY.

THE fourth annual meeting of the directors, officers, and workmen of this company, in connection with the bonus-sharing scheme, took place on Saturday afternoon last, in the recreation ground attached to the Old Kent-road Works. Mr. George Livesey, the chairman of the company, presided at a meeting at 3.30, supported by Mr. Morton, Mr. S. Roston, and Captain Heathorn, directors, Mr. Frank Livesey, chief engineer, and others.

Mr. Livesey said the profit-sharing scheme was established in November, 1889, to induce all connected with the company to take an interest in it, and to give the employees an opportunity of making provision for the future. They were very well satisfied with the results. In the company's bank to the credit of the workmen on July 1 last was the sum of £31,500., and he would ask how much of that would have been to their credit had they not adopted the scheme. But that was not all; the workmen showed their confidence in the company by investing their savings in the company's stock, the sum invested in shares having been £4,158., and in time it was hoped the workmen would have a director of their own denomination on the board. If they were ever called upon to strike they would consider whether they would be acting wisely. (A voice: "We've done with strikes.") Mr. Livesey said he knew that; the workpeople and their wives said they would think for themselves, and when they thought it out they came to a wise decision. At any rate, they were determined to see what they could do at the South Metropolitan Gas Works, and have such a union of employer and employed as to cause others to say, "Let us see if we cannot do the same." Mr. Livesey then read a list of St. John Ambulance certificates gained by workmen, and also presented framed certificates to men who had suggested improvements at the several works of the company. A handsome marble timepiece was presented to Mr. Sims, the accountant, bearing the following inscription:—"South Metropolitan Gas Company. Presented to Mr. H. C. Sims by the Profit-Sharing Committee, in token of their appreciation of his endeavours to promote the success of the scheme, and of the uniform kindness and courtesy he has shown to all the members in his capacity of secretary to the Committee. July 22, 1893." The presentation came as a surprise to the recipient. A tea to 5,000 of the workmen and their wives and children followed the open-air meeting, and selections of music were played by the company's band.

THE LANTAKO NITRATE COMPANY, LIMITED.

At the last general meeting of this company, the chairman, H. A. Rau, Esq., in addressing the meeting, after alluding to the amalgamation of the Santa Luisa Company with the company, went through the balance sheet, and commented on its principal features. He spoke of the necessity of working capital. At the time of the formation of the

two companies a joint working capital of £90,000. was provided, but it was expended on new works and machinery, for which purpose also a large floating debt had been created. He proposed that in future the item for goodwill should be eliminated. Their ordinary expenses had been reduced, and they hoped to reduce them further. The trading profits had been put down at £54,350. They had deferred to the option of the auditors, and had not included in that item £26,000., which represented profits earned on the stocks of nitrate in their possession on December 31 last. The earning powers of the company, however, were represented by the larger sum. He was glad to call attention to the considerable improvement they had effected since last year in the financial and industrial position of the company. Their floating debt in Europe had entirely disappeared, owing to the increased efficiency of their works, to the better management on the coast, and to the greater value of their properties. The improvement in their position was also owing to the consolidation of that part of their floating debt which was represented by London liabilities. Resolutions were passed approving of the dividend proposed (5 per cent.), the division of the £10. shares into shares of £5., and making certain alterations in the articles of association of the company.

THE BURNTISLAND OIL COMPANY.

The report states that the works have been closed since January last. The directors, however, have agreed to a number of alterations and improvements in the machinery, plant, etc., and they expect to be able to resume work in about four months. They recommend that from £20,000. to £25,000. should be borrowed for the purpose of defraying the cost of the improvements and for providing working capital.

DIVIDENDS.

JEYES' SANITARY COMPOUNDS COMPANY, LIMITED.

The directors of this company have declared an interim dividend at the rate of 10 per cent. per annum for the six months ended June 30, payable forthwith.

GAS LIGHT AND COKE COMPANY.

The company recommend a dividend for the past half-year at the rate of 12 per cent. per annum, carrying forward £21,082.

THE PATENT VICTORIA STONE COMPANY, LIMITED.

The directors have declared an interim dividend at the rate of 10 per cent. per annum for the half-year ended June 30.

SANTA RITA NITRATE COMPANY.

The Board of Directors have declared a dividend of 2s. 6d. per share and 2s. 6d. per share payable later, making for the eight months ending 31st December, 1892, a total distribution of 8s. per share.

THE SANITAS COMPANY, LIMITED.

The directors of this company have declared an interim dividend at the rate of 10 per cent. per annum.

THE PACCHIA AND JAZPAMPA NITRATE COMPANY, LIMITED.

The directors of this company have declared an interim dividend for the six months ending 30th June at the rate of 10 per cent. per annum.

New Companies.

Fowey Gas Co., Limited.—CAPITAL £5,000. in shares of £5. each. The object of this Company is to take over as a going concern the Fowey Gasworks, and to carry on the business of manufacturers of gas and dealers in coal tar, &c.

Port Tennant Chemical Co., Limited.—CAPITAL £3,000., in £10. shares. This company has been formed with a view to purchasing works at Llansamlet, Glamorgan, and to carry on the business of manufacturers of products from tar, pitch, ammoniacal liquor, and other gas residual products.

Bleaching Syndicate, Limited.—CAPITAL £7,500. in £1. shares. This company has been formed to carry on the business of bleachers and manufacturers of bleaching material, etc. The subscribers to the Memorandum of Association are: H. C. Harrington, 95, Farrington-street, London, E.C., accountant; G. Brown, 43, Seaford-road, South Tottenham, clerk; A. H. Thorne, 22, Wells-street, Oxford-street, London, clerk; G. Pye, 43, Broderick-road, Upper Tooting, London, architect; F. E. Hancock, 7, Smith-square, Westminster, London, no occupation; R. A. Wilson, 21, Taverer-road, London, S.E., clerk; F. W. Button, Old Kent-road, London, S.E., clerk.

Electric and Automatic Engineering Co., Limited.—CAPITAL £10,000. in £1. shares. This company has been formed to manu-

Ore Concentrating Apparatus. A. Walton. 13,645. July 13.
Production of Nitric Acid, Caustic Alkali, and Ferric Oxide.
Lunge and F. M. Lyte. 13,654. July 13.
Production of Caustic Alkali and Chloride of Lead for Conversion
Chlorine and Refined Lead. F. M. Lyte and G. Lunge.
July 13.
Producing Basic Lead Salts and Obtaining Certain Bye-Prod-
G. Lunge and C. H. M. Lyte. 13,656. July 13.
Rust-Preventing Composition. W. P. Thompson. 13,702. July 14.
Improved Treatment of Bicarbonate of Soda. Sir L. Bell.
July 14.
Evaporating Saline Solutions. Sir L. Bell. 13,709. July 14.
Manufacture of Ammonia, Sodium, Hydroxide, and Chlorine
Apparatus Therefor C. Kellner. 13,722. July 14.
Apparatus for the Electrolytic Production of Bleaching Liquid
Kellner. 13,723. July 14.
Production of Alkali Cyanides. W. Siepermann 13,754. July 15.
Separating Oil, etc., from Exhaust Steam. G. Hudson and G. Sand
13,777. July 15.
Removing Grease from Tin Plates, J. J. Carnaud. 13,797. July 15.

Specialty abstracted by Dr. H. Zerener, civil engineer, the Patent Office, 20 Eichendorffstrasse, Berlin, N., for the Chemical Abstracts Journal. Dr. Zerener is willing to at once protest against the granting of such new Patents as may collide with the interests of subscribers.

Substitute for Pumice Stone and Process of Manufacturing Same. H. Salmon and J. E. Whiting. 13,366. July 10.

Improved Treatment of Sodium Chloride and Method of Utilizing the Product in the Manufacture of White Lead, Soda, Chlorine, and their Derivatives. R. Hadden. 13,466. July 10.

Improvements in Sewage Precipitation Tanks. E. C. Ives. 13,417. July 10.

Improved Production of Colouring Matters. A. Ashworth and J. Bürger. 13,419. July 11.

Producing Acetic and Citric Acids, etc., and Alcoholic Spirits and Vinegar. R. P. Geddes. 13,438. July 11.

Improvements in the Manufacture of "Driers," for Varnishes and Oils. W. P. Thompson. 13,450. July 11.

Improvements in the Manufacture of Artificial Musk. E. Gfeller and The Clayton Aniline Co., Ltd. 13,477. July 11.

Extracting Oil by Volatile Solvents, and Apparatus Therefor. A. W. MacIlwaine and G. G. M. Hardingham. 13,478. July 11.

Improved Apparatus for the Manufacture of Gas. H. H. Lake. 13,482. July 11.

Extracting Gold and Silver from their Ores. T. F. Barbour. 13,505. July 12.

Improved Manufacture of Lead Pigments. H. R. Gregory. 13,558. July 12.

Copper Distillation Flask. V. Edwards. 13,567. July 12.

A Dry Electrolytical Process for Producing Alloys of Lead and Sodium or Potassium. C. T. J. Vautin. 13,568. July 12.

Paper-Pulp Strainers. T. T. and J. H. Howell. 13,587. July 13.

Smoke-Consuming Apparatus. J. Mason, junior. 13,588. July 13.

Process for the Manufacture of Sulphide of Carbon. C. D. Abel. July 13.

Improvements in the Production of Sulphur. C. D. Abel. 13,628. July 13.

G. C. B. DUNCAN AND H. WATSON, oil manufacturers, Dashwood House, under the style of Duncan, Watson and Co.
H. SARSON, H. L. SARSON, AND P. L. SARSON, vinegar merchants, Cath street, City-road, E.C., under the style of Henry Sarson and Sons, as regards H. Sarson.

RUTHERFORD, SQUIRE KNIGHT, Shubbery-road, West Green, Tottenham
Hill-street, Walworth, S.E., engineer, late oil and colourman.

40 cks. J. T. M.

Belgium, 30 brls. Burrell & Co. 60 A. Brown & Co. E. Indies, 122 cs. Co-op Lightgr As, Ltd. Ceylon, 59 pkgs. R. G. Hall & Co.	Logwood Jamaica, 31 t. L. & I. D. Jt. Co. " 10 Hawthorn, Shedden & Co.	Mica and Asbestos— Canada, £120 D. Davis & Co.	Ultramarine— Holland, 42 cks. Thames S. T. & L. Co., Ltd. " 4 G. Rahn & Co. Germany, 20 Hernu, Peron & Co. " 40 W. Thatcher
Caustic Potash— France, 63 c. J. A. Reid	Myrabolams E. Indies, 127 pkgs. J. J. Williamson & Sons " 1,334 J. P. Alpe & Co. " 219 Devitt and Hett	Ochre— France, 154 brls. W. Harrison & Co. Holland, 5 pkgs. Philipps & Graves	Varnish— Belgium, 2 pkgs. Stobbs, Wilson & Co. " 4 Tingle, Jacobs & Co.
Caustic Soda— Holland, 110 c. Beresford & Co.	Naphthalene Germany, 15 pkgs. Fleming's Oil Co.	Paraffin Wax— U. States, 101 cs. H. Hill & Sons " 750 pkgs. J. H. Usmar & Co.	White Lead— Holland, 24 cks. Burrell & Co. France, 10 Holland, 31 T. & W. Farmiloe Germany, 25 S. H. Willoughby " 13 Spies Bros. & Co. " 6 T. & W. Farmiloe Belgium, 4 Haefner, Hilpert & Co. " 8 J. L. Lyon & Co.
Chemicals (otherwise undescribed) Germany, 76 pkgs. A. & M. Zimmermann " 49 T. H. Lee " £10 L. & I. D. Jt. Co. Holland, 5 A. F. White & Co. " 15 pkgs. J. Barber & Co. Belgium, 4 T. H. Lee Natal, 48 Hunwicke & Hadley France, 18 H. Lorenz Spain, 20 Davies, Turner & Co.	Orchella E. Indies, 45 pkgs. Hoare, Wilson & Co. " 10 Clarke & Smith Zanzibar, 69 Prop Bull Wf. Portugal, 393 " Sumac Italy, 100 pkgs. Union L. Co., Ltd. France, 102 Williams, Torrey & Field Italy, 2,000 pkgs. C. S. Lovell " 500 J. Kitchin Ltd. " 300 W. Shelcott " 50 H. Johnson & Sons	Phosphate Rock— France, 300 t. Anglo Contl. Guano Wks. Canada, 250 France, 146 A. Hunter & Co.	Zinc Oxide— Holland, 50 brls. M. Ashby Ltd. " 25 Fellows, Morton & Co. " 625 cks. Soundy & Sons " 50 J. Owen Germany, 35 J. Matton
Chloride of Lime— France, 24 pkgs. Mead, Son & Co.	Tanner's Bark Natal, 40 t. A. & W. Nesbitt " 47 Hicks, Nash & Co.	Pitch— Germany, 144 cks. Linck, Moeller & Co. France, 31 Poth, Hille & Co.	LIVERPOOL. Week ending July 13th.
Tritate of Lime— Italy, 10 pkgs. Thames, S. T. & L. Co., Ltd.	Turmeric E. Indies, 79 pkgs. Hoare, Wilson & Co. " 191 L. & I. D. Jt. Co. Cochin, 50 E. Indies, 352 Lewis & Peat " 35 Co-op L. Assn. Ltd.	Potash— France, 104 c. Petri Bros.	Acetate of Lime— New York, 545 bgs.
ream of Tartar— Spain, 5 pkgs. C. Christopherson & Co. France, 2 G. Ward & Sons " 10 C. F. Gerhardt " 10 M. Ashby Ltd. " 5 F. C. Devon & Co. " 17 B. & F. Wf. Co., Ltd. Holland, 5 E. W. Carling & Co. Spain, 36 Middleton & Co. " 24 W. C. Bacon & Co. " 6 B. & F. Wf. Co., Ltd. Italy, 13 Evans Lescher & Co. " 6 B. Jacob & Sons	Valonia A. Turkey, 431 t. A. & W. Nesbitt " 76 Leach & Co. " 25 A. J. Humphrey " 150 Boucher, Mortimore & Co. " 25 Hicks, Nash & Co. " 23 Marshall & French	Potassium Carbonate— Germany, 10 cks. F. Boehm France, 65 c. J. A. Reid	Ammonium Sulphate— Marseilles, 9 cks.
estuffs— Aniline Holland, 1 pkge. Kraye, Back & Co. Annatto France, 1 pkge. Carter, Paterson & Co. Argols aly, 33 pkgs. Thames, S. T. & L. Co., Ltd. " 841 B. Jacob & Sons Cutch pan, 600 pkgs. L. & I. D. Jt. Co. Holland, 10 J. Barber & Co. rneo, 300 L. & I. D. Jt. Co. Indies, 500 Ross & Deering Diri Divi Indies, 115 pkgs. Culverwell, Brooks & Co. " 109 Anderson, Weber & Smith Hon, 109 Extracts many, 2 pkgs. L. & I. D. Jt. Co. gium, 50 Leach & Co. " 20 L. J. Levinstein & Sons mark, 42 pkgs. J. Forsey " 2 Bailey & Leatham " 20 A. F. White & Co. and, 1 J. Sinclair & Son ce, 20 Bennett S. S. Co. " 2 Hernu, Peron & Co. " 100 L. J. Levinstein & Sons stic ica, 8 t. Hawthorn, Shedden & Co. mbler dies, 440 pkgs. G. Ward & Sons 193 S. Barrow & Bro., Ltd. 60 Brinkmann & Co. 434 L. & I. D. Jt. Co. 453 Adamson, Gillfillan & Co. 427 E. Boustead & Co. igo 9 cs. M. D. Co. lies, 42 cks. L. & I. D. Jt. Co. 21 R. von Glehn & Sons 4 W. Brandts, Son & Co.	Farina— Germany, 200 pkgs. J. Anderson & Co. Holland, 150 Seaward Bros. " 50 J. Barber & Co. " 50 H. Lorenz " 100 J. Knill & Co. Glucose— U. States, 3,150 pkgs. 3,901 cwts. R. G. Hall & Co. " 300 300 L. Sutro & Co. " 30 300 G. White " 500 500 Devitt & Hett " 450 450 A. Boake " 250 250 Roberts & Co. Germany, 600 600 Anderson, Weber & Smith " 600 600 Baxter & Hoare U. States, 25 140 L. & I. D. Jt. Co. " 250 250 G. Hedges & Son " 1,649 1,649 B. & N. Whvs. Co. " 750 758 Windmuller, Mack & Co. " 1,500 1,500 Barrett, Tagant & Co. " 150 910 Union Lghtge. Co. Ltd. Guano— Mona Isles, 1,400 t. Anglo-Contl. Guano Wks. Manganese— Japan, 80 t. Sawyer, Sons & Oakley Manure— Germany, 4 t. R. W. Greef & Co. Iquique, 1,430 W. Montgomery & Co. Aruba, 432 G. M. Bauer Japan, 1 Baiss, Brs. & Co. Belgium, 1 Leach & Co. Methyl Alcohol— Germany, 10 cks. Philipps & Graves Mica— E. Indies, £2,165 W. H. Smith & Son " 40 Hale & Son	Potassium Chloride— Holland, 22 pkgs. H. Johnson & Sons Potassium Oxymuriate— Belgium, 22 pkgs. G. Boor & Co. Potassium Permanganate— Germany, 20 pkgs. F. Boehm Pumice Stone— Italy, 2 t. Acton & Borman " 7 10 c. O'Hara & Hoar " 1 Philipps & Graves Pyrates— Spain, 2,967 t. C. Tennant, Sons & Co. Rosin— France, 15 brls. Lucas & Spencer's Wf. Saltpetre E. Indies, 483 bgs. Lucas & Spencer's Wf. " 58 Ralli Brs. Germany, 1,667 Perkins & Homer " 80 cks. P. Hecker & Co. E. Indies, 706 bgs. Brown & Elmslie Iquique, 11,346 A. Ford & Co. Sodium Acetate— France, 45 pkgs. S. F. Waters & Co. Sodium Nitrite— Germany, 1 pkge. C. Faust & Co. Stearine— France, 100 bgs. H. Hill & Sons " 75 Beresford & Co. Sulphur— Italy, 3 t. Jessop & Co. " 10 J. Puddy & Co. " 13 Middleton S. S. Wf. Co. " 5 J. Houghton & Sons " 10 F. Smith " 20 Hyslop & Symonds " 5 H. W. Ison " 10 J. T. Morton Tallow and Stearine— New Zealand, 2 cks. Brummorstaedt & Co. Tar— N. Russia, 3,213 brls. W. F. Malcolm & Co. Tartaric Acid— Holland, 5 pkgs. F. C. Devon & Co. " 6 B. & F. Wf. Co. Ltd. " 5 J. Owen France, 2 R. Morrison & Co.	Antimony— Valparaiso, 92 sks. Brownells & Co. Antofagasta, 81 sks. Barytes— Rotterdam, 12 cks. Antwerp, 25 60 bgs. Bleaching Powder— New York, 20 pkgs. Morris & Jones Bone Meal— Rangoon, 317 bgs. Borate of Lime— Valparaiso, 397 sks. Antofagasta, 1,500 Cockbain, Allardice & Co. Castor Oil— Marseilles, 1 cs. Thompson, Tedcastle & Co. " 20 cks. Antwerp, 113 brls. Caustic Potash— Dunkirk, 29 dms. Chemicals (otherwise undescribed) In transit, 2 cs. Antwerp, 3 cks. J. T. Fletcher & Co. Colours— In transit, 1 cs. Rotterdam, 38 23 cks. Cottonseed Oil— Boston, 6 brls. Natalei Lozzarini Copperas— Bremerhaven, 47 cks. Cream of Tartar— Marseilles, 2 cks. 10 kgs. Dyestuffs— Algarroballa Havre, quity. Cunard S. S. Co., Ltd. Valparaiso, 16 bgs. J. Cars & Co. Cutch Rangoon, 838 bxs. Extracts Nantes, 535 cks. Oak Extract Co. Bordeaux, 120 New York, 2 brls. Guion & Co. Marseilles, 200 cks. Ghent, 30

Fustic Colon, 900 ps. Vera Cruz, 2,407 lbs. Tampico, 7,470 ps. 8,158 stks. Savanna, 1,251 lbs. G. H. Malter & Co. Colon, 2,489 ps. D. Midzely & Co.	Gambier Singapore, 213 bls. Logwood Monte Christi, 400 t. Myrabolams Bombay, 7,925 bgs. Sumac Palermo, 200 bgs. J. Kimbin, Ltd. " 400 200 bls. Valonia Smyrna, 2,479 bgs. Dragamestre, 135 t.	Glucose Hamburg, 258 cks. 50 kgs. New York, 492 brls. Dunkirk, 100 bgs.	Guano Valencia, 234 bgs.	Iodine Valparaiso, 19 brls. A. Gibbs " 154 W. & J. Lockett " 18	Iron Oxide Montreal, 35 brls. W. Lester & Son	Lead Acetate Stettin, 59 cks.	Manganese Bordeaux, 200 t. R. J. Francis & Co.	Ochre Bremerhaven, 1 ck. New York, 192 brls. Bordeaux, 34 cks. Rouen, 26 Co-op W'sale Society, Ltd. Carthagena, 307 brls. Marseilles, 23 cks. J. Glynn & Son " 32	Paint Bremerhaven, 2 tubs	Paraffin Scale New York, 450 brls. Thompson & Bedford Rangoon, 330 bxs. New York, 512 brls. Standard Oil Co.	Paraffin Wax Philadelphia, 50 cs	Phosphate Montreal, 201 t. Phosphate Lime Co., Ltd. " 224 Pickford & Winkford	Pitch Amsterdam, 13 cks.	Plumbago Genoa, 100 bgs. G. Huntriss & Co.	Potash Rouen, 106 cks 40 dms. Co-op W'sale Society, Ltd. Dunkirk, 10 35 dms.	Potash Salts Hamburg, 1,016 bgs.	Pumice Stone Vera Cruz, 100 pkgs.	Pyrites Huelva, 1,767 t. Tennants & Co. " 5,476 Matheson & Co.	Rosin New Orleans, 1,500 brls. New York, 1,605	Saltpetre Hamburg, 50 brls. 4 cks.	Silver Sulphur Colon, 6 cs. Sanchez & Gaffron	Soap Philadelphia, 9 bxs. Cuttle & Co. Marseilles, 3 cs. Thompson, Tedcastle & Co. " 12 Elder, Dempster & Co. " 48 J. Glynn & Son Rotterdam, 2 cs.
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Soapstone Bordeaux, 400 bgs. G. G. Blackwell Philadelphia, 140 Genoa, 1,000 W. Harrison & Co. " 100	Soda Ash Beyrout, 13 brls. Doki, Chida & Co. Philadelphia, 2 cks. J. Taylor & Co.	Stearine Antwerp, 63 bgs.	Sulphur Huelva, 2,145 t. Matheson & Co.	Tallow In transit, 10 brls. Boston, 65 tcs. 40 hhd. Philadelphia, 139 cks 59	Tartar Bordeaux, 58 cks.	Tartaric Acid Rotterdam, 18 cks.	Turpentine Savannah, 2,894 brls.	Ultramarine In transit, 48 cs. Rotterdam, 17 2 cks. Hamburg, 4	Varnish Karachi, 1 cs. New York, 2 brls. A. Field & Co.	Verdigris Bordeaux, 4 cks.	Waste Salt Hamburg, 2,117 bgs. Hamburg, 120 t.	White Lead Rotterdam, 22 cks.	Zinc Oxide New York, 160 brls. Marseilles, 2 cks. Antwerp, 60 brls. J. T. Fletcher & Co.	Zinc "White" Amsterdam, 6 cks.
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HULL.

Week ending July 15th.

Acetate New York, 1,250 bgs. Wilson, Sons, & Co., Ltd.	Barytes Antwerp, 55 cks. Bailey & Leatham Bremen, 85 Riga, 53 Wilson, Sons, & Co., Ltd. Rotterdam, 47 Hutchinson & Son Antwerp, 84	Castor Oil Leghorn, 11 cs. Wilson, Sons, & Co., Ltd. Genoa, 10 115 pks.	Chemicals (otherwise undescribed) Hamburg, 3 cks. Wilson, Sons, & Co., Ltd. Stettin, 20 Danzig, 11 pks. Hamburg, 1 24 Antwerp, 35	Colours Rouen, 2 cks. Rawson & Robinson Rotterdam, 9 G. Lawson & Sons " 98 pks. 2 W. & C. L. Ringrose " 3 Harrison Bros. Flushing, 1 cs. 2 10 pkgs. G. Lawson & Sons Amsterdam, 7 W. & C. L. Ringrose Antwerp, 234 bgs. Bailey & Leatham " 2 brls. 1 Wilson, Sons, & Co., Ltd. " 7 Leghorn, 5 Marseilles, 28 Bremen, 4 Veltmann & Co. " 3 cs. J. Pyefinch & Co. Flushing, 3 34 Hutchinson & Son Rotterdam, 5 1 Danzig, 23 pks. Hamburg, 10
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Dyeatuffs Alizarine Rotterdam, 83 pks. W. & C. L. Ringrose Madder Rotterdam, 1 ck. J. Pyefinch & Co.	Farina Harlingen, 250 bgs. Stettin, 650 Wilson, Sons, & Co., Ltd.	Glucose New York, 50 brls. Stettin, 80 cks. 875 bgs.	Litharge Rotterdam, 6 cks. Hutchinson & Son	Manganese Rotterdam, 70 cks. Furley & Co.	Mica Christiania, 2 cs. Wilson, Sons, & Co., Ltd.	Plumbago Hamburg, 19 cks. " 11 brls. Wilson, Sons, & Co., Ltd.	Potash Antwerp, 15 cks. Wilson, Sons, & Co., Ltd. Dunkirk, 100 pks. " "	Pumice Stone Leghorn, 34 pks. Wilson, Sons, & Co., Ltd.	Pyrites Huelva, 1,974 t.	Soap Marseilles, 3 cs. Wilson, Sons, & Co., Ltd.	Stearine New York, 125 bgs. Wilson, Sons, & Co., Ltd. Antwerp, 12 Bailey & Leatham " 15 pks. Wilson, Sons, & Co., Ltd.	Talc Leghorn, 12 bls. Wilson, Sons, & Co., Ltd.	Tallow New York, 40 hhd. Wilson, Sons, & Co., Ltd.	Tartar Bordeaux, 1 ck. Rawson & Robinson " 4 cks.	Tartaric Acid Bordeaux, 1 ck. Rawson & Robinson Rotterdam, 3 cks. G. Lawson & Sons	Ultramarine Rotterdam, 8 cks. Sissons Bros. & Co. Bremen, 4 Rotterdam, 1 Hutchinson & Son	Varnish New York, 60 cs. 20 brls. Wilson, Sons, & Co., Ltd. Flushing, 2 cs. Brach & Rothenstein	Verdigris Marseilles, 40 cks. Wilson, Sons, & Co., Ltd.	White Lead Rotterdam, 26 cks. Storry, Witty, & Co. Antwerp, 26 Bailey & Leatham Rotterdam, 58 Hutchinson & Son " 9 Gibson Bros.	Zinc Oxide Rotterdam, 5 brls. Morley & Co.
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GLASGOW.

Week ending July 20th.

Acetic Acid Gothenburg, 4 cks.	Aniline Colours Hamburg, 5 cks. J. Currie & Co. Rotterdam, 17 J. Rankine & Son	Barium Sulphate Antwerp, 300 bgs. 76 cks.	Barytes Rotterdam, 184 cks.
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Castor Oil Marseilles, 65 cks. R. Han Antwerp, 28 Cecanada, 198	Colours Hamburg, 2 cks. J. Currie & Co. Amsterdam, 3 cs. Hamburg, 1 Rotterdam, 74 pkgs.	Cream of Tartar Marseilles, 37 cks.	Dyeatuffs Alizarine Rotterdam, 90 cks. J. Ranki Extracts Baltimore, 12 brls. Marseilles, 3 cs. 20 cks. Fiume, 1,100 Madder Rotterdam, 1 bx. 7 cks. J. Ranki Myrabolams Cocanada, 410 bgs. Sumac Palermo, 550 bgs.	Farina Hamburg, 64 bgs. J. Currie & Co. Antwerp, 3 Danzig, 200	Glucose New York, 1 brl.	Iron Oxide Fiume, 51 bls. Fergus Lead Acetate Hamburg, 12 cks. J. Currie & Co. " 11 Manganese Hamburg, 25 cks. J. Currie & Co. Ochre Marseilles, 44 cks.	Phosphate Rock Bona, 25 t.	Potash Hamburg, 40 cks. J. Currie & Co. Rotterdam, 45	Saltpetre Hamburg, 4 cks. J. Currie & Co. " 100 kgs.	Soap Marseilles, 192 cs. Fiume, 69	Soda Rotterdam, 7 cks. J. Ranki	Stearine Baltimore, 56 bgs.	Sulphur Girgenti, 650 t.	Tannin Hamburg, 2 cs.	Tartar Oporto, 5 cks.	Waste Salt Hamburg, 254 t. J. Currie & Co.	White Lead Rotterdam, 10 cks. J. Ranki Antwerp, 3	Zinc Oxide Antwerp, 75 cks.	Zinc White Rotterdam, 150 cks.
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TYNE.

Week ending July 15th.

Alum Earth Hamburg, 17 cks. Tyne S. S.	Asbestos Rotterdam, 1 bl. Tyne S. S.	Chemicals (otherwise undescribed) Hamburg, 1 cs. Tyne S. S.	Colours Rotterdam, 8 cks. Tyne S. S.	Farina Rotterdam, 20 bgs. Tyne S. S. Hamburg, 50	Glucose Rotterdam, 10 cks. Tyne S. S.	Limestone Antwerp, 2 crts. Tyne S. S.
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late—
ago— 210 t.
re— 5 bgs. Tyne S. S. Co.
rg— 3 cks. Tyne S. S. Co.
on— 2,450 t. Mason & Barry

GOOLE.

Week ending July 12th.

Acid—
 dam, 2 cs.
 rp, 40 pkgs.

Alkali—
 Calais, 33 cks.
Alumina Sulphate—
 Rotterdam, 100 cks.
Dyestuffs—
 Alizarine
 Rotterdam, 115 brls. 39 pkgs.
Dyestuffs (otherwise undescribed)
 Boulogne, 43 cs. 15 cks. 28 pkgs.
 Ghent, 2
Farina—
 Hamburg, 125 bgs.
 Delfsryhl, 1,050
Lead Acetate—
 Hamburg, 11 cks.

Muriate—
 Rotterdam, 10 cks.
Plumbago—
 Rotterdam, 1 ck.
 Boulogne, 5 cs.
Potash—
 Rotterdam, 36 cks.
 Calais, 62 dms.
Pyrites—
 Huelva, 2,087 t.
Saltpetre—
 Rotterdam, 200 bgs.
 31
Waste Salt—
 Hamburg, 610 cks 408 bgs 697 t.

GRIMSBY.

Week ending July 15th.

Aluminium—
 Dieppe, 3 cks.
Chemicals (otherwise undescribed)
 Antwerp, 31 cs. 7 pkgs.
 Hamburg, 15
Dyestuffs (otherwise undescribed)
 Dieppe, 5 cks.
Farina—
 Hamburg, 140 bgs.
Zinc Ashes—
 Antwerp, 24 cks.

EXPORTS OF CHEMICAL PRODUCTS

OF

THE PRINCIPAL PORTS OF THE UNITED KINGDOM.**LONDON.**

Week ending July 19th.

—
 own, 9 cs. £18
 w, 16
 g, 19 4 c. 31
 —
 ndon, 1 t. 3 c. £34
 —
 y, 13 c. £20
ium Carbonate—
 io, 10 c. £15
 res, 10 15
ium Chloride—
 Bay, 7 c. £10
 as, 1 t. 10 47
 ndria, 7 11
 10 17
ium Nitrate—
 Bay, 18 ms. £159
ium Sulphate—
 tius, 200 t. £2,450
 ia, 22 297
 urg, 135 13 c. 1,780
ic—
 urne, 5 t. 9 c. £78
 y, 20 kgs. 15
ic Acid—
 urne, 9 cks. £103
 —
 gen, 3 c. £74
 hagen, 16 42
 urg, 16 t. 2 471
ic Acid—
 iffe, 1 t. £13
 ndon, 22 cs. 20
 y, 30 drs. 27
ic Soda—
 Bay, 15 c. £25
 gton, 2 6
 iton, 2 t. 15 27
 , 3 57
 urne, 10 3 89
 rt, 4 47
 itius, 3 5 34
de of Lime—
 Bay, 9 c. £5
 iffe, 3 t. 15 41
 ndon, 20 cs. 18
Acid—
 urg, 2 t 10 c. £420
 York, 1 5 198
 ita, 1 cs. 9
 loma, 8 cks. 212
 e, 4 31
 rdam, 32 32
 antinople, 2 17
 n, 4 31
 tiania, 6 51
Products—
 iline 1 cs. £46
 itta, 136 cks. £985

Benzol
 Rotterdam, 234 cks. 26 drs. £1,216
 Hamburg, 14 138
Creosote
 Huelva, 4,243 brls. £1,503
Naphtha
 Sydney, 20 drs. £10
Pitch
 Boston, 300 brls. £150
 St. Johns, N.F., 100 33
 Suez, 10 cks. 10
 Philadelphia, 650 bgs. 1,230 pkgs. 389
Tar
 Treport, 24 cks £14
 Mauritius, 15 runs 12
 St. Johns, N.F., 45 pkgs. 21
 Boston, 100 brls. 50
Tar Oil
 Stettin, 100 brls. £43
 Treport, 26 15
 Paris, 20 cks. 50
 Marseilles, 6 10
Toluol
 Treport, 2 cks. £21
Copperas—
 Mauritius, 1 t. 5 c. £10
Copper Sulphate—
 Lyttelton, 2 t. £33
 Wellington, 10 c 9
 Odessa, 5 80
Cream of Tartar
 Hobart, 10 c. £41
 Sydney, 3 t. 5 252
Disinfectants—
 Colombo, 26 pkgs. 6 c. £42
 Bombay, 9 t. 3 92
 London, Ont., 5 cks. 40
 Natal, 29 cs. 40
 Valencia, 17 45
Flowers of Sulphur—
 Melbourne, 13 c £7
 Hobart, 1 t. 7
Manure—
 Gottenburg, 34 t. 9 c. £92
 Las Palmas, 30 130
 Riga, 452 3 1,135
 Madeira, 26 1 230
 Canaries, 10 2 83
 Treport, 48 288
Phosphoric Acid—
 Boulogne, 7 c. £25
Phosphorus—
 Hobart, 4 c. £51
Potash—
 Canterbury, 6 c. £7
 Suez, 6 10
Potash Crystals—
 Brussels, 13 c. £94
Potassium Bichromate—
 Calcutta, 11 c. £24
Potassium Chlorate—
 Olessa, 1 t. 15 c. £110
Potassium Nitrate—
 Canaria, 10 c. £9
Saltpetre—
 Antwerp, 2 t. £43
 Algoa Bay, 11 c. £13
 Dunedin, 1 22
 Rio de Janeiro, 7 8 166
 Bahia, 8 7 188

Sheep Dip—
 Sydney, 150 drs. £124
 Kangoon, 60 12
 E. London, 250 3 cs. 3 t. 169
 Melbourne, 100 325 pkgs. 524
 Cape Town, 3 t. 14 c. 120
 Geraldton, 1 15 73
Soda—
 Nelson, 1 t. £8
 Cape Town, 4 12
 Teneriffe, 2 11 c. 28
Soda Ash—
 Melbourne, 24 t. £113
Soda Crystals—
 Bremen, 10 c. £5
Soda Salts—
 New York, 3 t. 2 c. £75
Sodium Bicarbonate—
 E. London, 10 c. £9
 Singapore, 5 9
Sodium Hyposulphite—
 Yokohama, 2 t. 10 c. £15
Sodium Oxalate—
 Demerara, 5 t. 6 c. £160
Sulphur—
 Dunedin, 3 t. £23
 Algoa Bay, 1 1 c. 8
 E. London, 95 pkgs. 60
Sulphuric Acid—
 E. London, 25 pkgs. £27
 Rio de Janeiro, 8 cs. 11
Superphosphate—
 Libau, 286 t. £853
 Konigsberg, 135 465
 Newfairwater, 73 18 c. 260
 Canaria, 7 10 30
Tartaric Acid—
 Natal, 5 c. £25
 Nelson, 3 15
 E. London, 1 brl. 10
 Wellington, 5 23
 Rio de Janeiro, 2 13
 Sydney, 2 t. 5 231
Tin Salts—
 Riga, 5 c. £17

LIVERPOOL.

Week ending July 19th.

Alum—
 Cape Town, 2 t. £12
 Lisbon, 10 5 c. 50
 Melbourne, 2 10 15
 M. Video, 3 1
 Alexandria, 13 78
 Ibrail, 6 15 44
 Havana, 1 7 2 q. 7
Al-minous Cake—
 Calcutta, 17 t. 11 c. 1 q. £64
Ammonium Carbonate—
 Stockholm, 9 c. 1 q. £11
 Rio Janeiro, 7 3 15
 Guttufsky, 4 10 159
Ammonium Chloride—
 Montreal, 5 c. 2 q. £10
 Syra, 5 8
 Vera Cruz, 3 5

Ammonium Sulphate—
 Rotterdam, 50 t. £675
 Sourabaya, 257 4 c. 2 q. 2,961
 Cheribon, 78 19 2 870
 Samarang, 25 13 3 325
 Barbados, 50 7 2 659
 Guttufsky, 20 5 3 260
 Las Palmas, 30 18 3 417
 Valencia, 98 4 3 1,350
Asbestos—
 Sydney, 4 cs. 1 ck. 1
 Taltal, 1
 Pernambuco, 1
Bleaching Powder—
 Baltimore, 111 cks.
 Boston, 1,031 17 brls.
 B. Ayres, 45
 Havre, 37
 Montreal, 51
 New York, 460 105
 Oporto, 30
 Port los Angeles, 51
 Calcutta, 50 cs.
 Maranham, 8
 Rouen, 15
Bone Waste—
 Rouen, 10 t. 15 c. £75
Boracic Acid—
 Havre, 5 t. £178
 Havana, 3 c. 6
Borax—
 Antofagasta, 1 t. 6 c. £46
 Alexandria, 9 13
 Antwerp, 16 17 504
 Rotterdam, 25 747
 Hamburg, 9 3 q. 270
 Stettin, 12 19
 Melbourne, 10 2 10
 Adelaide, 14 3 22
Calcined Magnesia—
 Genoa, 1 cs.
Calcium Chloride—
 New York, 10 t. £46
Carbolic Acid—
 B. Ayres, 6 t. 15 c. 3 q. £258
 Rouen, 5 216
 Bombay, 1 8 23
 Montreal, 9 36
 Shanghai, 11 18
 Copenhagen, 1 65
 M. Video, 4 cs. 6
 Rotterdam, 5 2 13
 New York, 2 9 137
Castor Oil—
 M. Video, 3 cs.
Caustic Soda—
 Adelaide, 85 dms.
 Alicante, 7
 Baltimore, 135 brls.
 Barcelona, 100 53 cks.
 Bilbao, 30
 Campecha, 24
 Genoa, 136
 Hamburg, 185
 Hong Kong, 64 2
 Leghorn, 135
 Malaga, 48
 Malmo, 18
 M. Video, 15
 New York, 633

Fustic	Colon, 900 ps.	
	Vera Cruz, 2,407 lbs.	
	Tampico, 7,470 ps.	8,158 stks.
	Savanna, 1,251 lbs.	G. H. Malt & Co.
	Colon, 2,489 ps.	D. Midgely & Co.
Gambier	Singapore, 213 bls.	
Logwood	Monte Christi, 400 t.	
Myrabolams	Bombay, 7,025 bgs.	
Sumac	Palermo, 200 bgs.	J. Kitchin, Ltd.
	Valonia, 400 200 bls.	
	Smyrna, 2,479 bgs.	
	Dragamestre, 135 t.	
Glucose	Hamburg, 258 cks.	50 kgs.
	New York, 402 brls.	
	Dunkirk, 100 bgs.	
Guano	Valencia, 234 bgs.	
Iodine	Valparaiso, 19 brls.	A. Gibbs
	" 154 W. & J. Lockett	
	" 18	
Iron Oxide	Montreal, 35 brls.	W. Lester & Son
Lead Acetate	Stettin, 59 cks.	
Manganese	Bordeaux, 200 t.	R. J. Francis & Co.
Ochre	Bremerhaven, 1 ck.	
	New York, 192 brls.	
	Bordeaux, 34 cks.	
	Rouen, 26	Co-op. W'sale Society, Ltd.
	Carthage, 307 brls.	
	Marseilles, 23 cks.	J. Glynn & Son
	" 32	
Paint	Bremerhaven, 2 tubs	
Paraffin Scale	New York, 450 brls.	Thompson & Bedford
	Rangoon, 330 bxs.	
	New York, 512 brls.	Standard Oil Co.
Paraffin Wax	Philadelphia, 50 cs	
Phosphate	Montreal, 261 t.	Phosphate Lime Co., Ltd.
	" 224	Pickford & Winkford
Pitch	Amsterdam, 13 cks.	
Plumbago	Genoa, 100 bgs.	G. Huntriss & Co.
Potash	Rouen, 106 cks 40 dms.	Co-op. W'sale Society, Ltd.
	Dunkirk, 10 35 dms.	
Potash Salts	Hamburg, 1,016 bgs.	
Pumice Stone	Vera Cruz, 100 pkgs.	
Pyrites	Huelva, 1,767 t.	Tennants & Co.
	" 5,470	Matheson & Co.
Rosin	New Orleans, 1,500 brls.	
	New York, 1,005	
Saltpetre	Hamburg, 50 brls.	4 cks.
Silver Sulphur	Colon, 6 cs.	Sanchez & Gaffron
Soap	Philadelphia, 9 bxs.	Cuttie & Co.
	Marseilles, 3 cs.	Thompson, Tedcastle & Co.
	" 12	Elder, Dempster & Co.
	" 48	J. Glynn & Son
	Rotterdam, 50 bxs.	2 cs.

Soapstone	Bordeaux, 400 bgs.	G. G. Blackwell
	Philadelphia, 140	
	Genoa, 1,000	W. Harrison & Co.
	" 100	
Soda Ash	Beyrout, 13 brls.	Doki, Chida & Co.
	Philadelphia, 2 cks.	J. Taylor & Co.
Stearine	Antwerp, 63 bgs.	
Sulphur	Huelva, 2,145 t.	Matheson & Co.
Tallow	In transit, 10 brls.	
	Boston, 65 tcs. 40 hhd.	
	Philadelphia, 139 cks 59	
Tartar	Bordeaux, 58 cks.	
Tartaric Acid	Rotterdam, 18 cks.	
Turpentine	Savannah, 2 894 brls.	
Ultramarine	In transit, 48 cs.	
	Rotterdam, 17 2 cks.	
Varnish	Karachi, 1 cs.	
	New York, 2 brls.	A. Field & Co.
Yerdigris	Bordeaux, 4 cks.	
Waste Salt	Hamburg, 2,117 bgs.	
	Hamburg, 120 t.	
White Lead	Rotterdam, 22 cks.	
Zinc Oxide	New York, 160 brls.	
	Marseilles, 2 cks.	
	Antwerp, 60 brls.	J. T. Fletcher & Co.
	" 20	
Zinc White	Amsterdam, 6 cks.	

HULL.

Week ending July 15th.

Acetate	New York, 1,250 bgs.	Wilson, Sons, & Co., Ltd.
Barytes	Antwerp, 55 cks.	Bailey & Leatham
	Bremen, 85	
	Riga, 53	Wilson, Sons, & Co., Ltd.
	Rotterdam, 47	Hutchinson & Son
	Antwerp, 84	
Castor Oil	Leghorn, 11 cs.	Wilson, Sons, & Co., Ltd.
	Genoa, 10 115 pks.	
Chemicals (otherwise undescribed)	Hamburg, 3 cks.	Wilson, Sons, & Co., Ltd.
	Stettin, 20	"
	Danzig, 11 pks.	"
	Hamburg, 1 24	"
	Antwerp, 35	"
Colours	Rouen, 2 cks.	Rawson & Robinson
	Rotterdam, 9	G. Lawson & Sons
	" 98 pks. 2	W. & C. L. Ringrose
	Flushing, 1 cs. 2	10 pkgs. G. Lawson & Sons
	Amsterdam, 7	W. & C. L. Ringrose
	Antwerp, 234 bgs.	Bailey & Leatham
	" 2 brls. 1	Wilson, Sons, & Co., Ltd.
	Leghorn, 7	"
	Marseilles, 28	"
	Bremen, 4	Veltmann & Co.
	Flushing, 3 cs. 4	J. Pyefinch & Co.
	Rotterdam, 3 34	Hutchinson & Son
	Rotterdam, 5 1	"
	Danzig, 23 pks.	"
	Hamburg, 10	

Dyestuffs—			
Allizarine	Rotterdam,	83 pks.	W. & C. L. Ringrose
Madder	Rotterdam,	1 ck.	J. Pyefinch & Co.
Farina—			
Harlingen,	250 bgs.		
Stettin,	650		Wilson, Sons, & Co., Ltd.
Glucose—			
New York,	50 brls.		
Stettin,	80 cks.	875 bgs.	
Litharge—			
Rotterdam,	6 cks.		Hutchinson & Son
Manganese—			
Kotterdam,	70 cks.		Furley & Co.
Mica—			
Christiania,	2 cs.		Wilson, Sons, & Co., Ltd.
Plumbago—			
Hamburg,	19 cks.		
"	11 brls.		Wilson, Sons, & Co., Ltd.
Potash—			
Antwerp,	15 cks.		Wilson, Sons, & Co., Ltd.
Dunkirk,	100 pks.		"
Pumice Stone—			
Leghorn,	34 pks.		Wilson, Sons, & Co., Ltd.
Pyrites—			
Huelva,	1,974 t.		
Soap—			
Marseilles,	3 cs.		Wilson, Sons, & Co., Ltd.
Stearine—			
New York,	125 bgs.		Wilson, Sons, & Co., Ltd.
Antwerp,	12		Bailey & Leatham
"	15 pks.		Wilson, Sons, & Co., Ltd.
Talc —			
Leghorn,	12 bls.		Wilson, Sons, & Co., Ltd.
Tallow—			
New York,	40 hhd.		Wilson, Sons, & Co., Ltd.
Tartar—			
Bordeaux,	1 ck.		Rawson & Robinson
"	4 cks.		
Tartaric Acid—			
Bordeaux,	1 ck		Rawson & Robinson
Rotterdam,	3 cks.		G. Lawson & Sons
Ultramarine—			
Rotterdam,	8 cks.		Sissons Bros. & Co.
Bremen,	4		
Rotterdam,	1		Hutchinson & Son
Varnish—			
New York,	60 cs. 20 brls.		Wilson, Sons, & Co., Ltd.
Flushing,	2 cs.		Brasch & Rothenstein
Yerdigris—			
Marseilles,	40 cks.		Wilson, Sons, & Co., Ltd.
White Lead—			
Rotterdam,	26 cks.		Storry, Witty, & Co.
Antwerp,	26		Bailey & Leatham
Rotterdam,	58		Hutchinson & Son
"	9		Gibson Bros.
Zinc Oxide—			
Rotterdam,	5 brls.		Morley & Co.

GLASGOW.

Week ending July 20th.

Acetic Acid	Gothenburg, 4 cks.	
Aniline Colours	Hamburg, 5 cks.	J. Currie & Co.
	Rotterdam, 17	J. Rankine & Son
Barium Sulphate	Antwerp, 300 bgs.	76 cks.
Barytes	Rotterdam, 184 cks.	

Castor Oil	Marseilles, 65 cks.	R. Ham
	Antwerp, 28	
	Cecanada, 198	
Colours	Hamburg, 2 cks.	J. Currie & Co.
	Amsterdam, 3 cs.	
	Hamburg, 1	
	Rotterdam, 74 pkgs.	
Cream of Tartar	Marseilles, 37 cks.	
Dyestuffs	Allizarine	90 cks. J. Rank
	Rotterdam, 90 cks.	
Extracts	Baltimore, 12 brls.	
	Marseilles, 3 cs.	20 cks.
	Fiume, 1,100	
	Madder	
	Rotterdam, 1 bx. 7 cks.	J. Rank
Myrabolams	Cocanada, 410 bgs.	
Sumac	Palermo, 550 bgs.	
Farina	Hamburg, 64 bgs.	J. Currie
	Antwerp, 3	
	Danzig, 200	
Glucose	New York, 1 brl.	
Iron Oxide	Fiume, 51 bls.	Fergu
Lead Acetate	Hamburg, 12 cks.	J. Currie
	" 11	
Manganese	Hamburg, 25 cks.	J. Currie
Ochre	Marseilles, 44 cks.	
Phosphate Rock	Bona, 25 t.	
Potash	Hamburg, 40 cks.	J. Currie
	Rotterdam, 45	
Saltpetre	Hamburg, 4 cks.	J. Currie
	" 100 kgs.	
Soap	Marseilles, 102 cs.	
	Fiume, 69	
Soda	Rotterdam, 7 cks.	J. Rank
Stearine	Baltimore, 56 bgs.	
Sulphur	Girgenti, 650 t.	
Tannin	Hamburg, 2 cs.	
Tartar	Op. to. 5 cks.	
Waste Salt	Hamburg, 254 t.	J. Currie
White Lead	Rotterdam, 10 cks.	J. Rank
	Antwerp, 3	
Zinc Oxide	Antwerp, 75 cks.	
Zinc White	Rotterdam, 150 cks.	

TYNE.

Week ending July 15th.

Alum Earth	Hamburg, 17 cks.	Tyne S. S.
Asbestos	Rotterdam, 1 bl.	Tyne S. S.
Chemicals (otherwise un-	Hamburg, 1 cs.	Tyne S. S.
Colours	Rotterdam, 8 cks.	Tyne S. S.
Farina	Rotterdam, 20 bgs.	Tyne S. S.
	Hamburg, 50	
Glucose	Rotterdam, 10 cks.	Tyne S. S.
Limestone	Antwerp, 2 crts.	Tyne S. S.

COOLE. ending July 12th. 2 cs. 40 pkgs.	Alkali— Calais, 33 cks. Alumina Sulphate— Rotterdam, 100 cks. Dyestuffs— Alizarine Rotterdam, 115 brls. 39 pkgs. Dyestuffs (otherwise undescribed) Boulogne, 43 cs. 15 cks. 28 pkgs. Ghent, 2 Farina— Hamburg, 125 bgs. Delfsryhl, 1,050 Lead Acetate— Hamburg, 11 cks.	Muriate— Rotterdam, 10 cks. Plumbago— Rotterdam, 1 ck. Boulogne, 5 cs. Potash— Rotterdam, 36 cks. Calais, 62 dms. Pyrites— Huelva, 2,087 t. Saltpetre— Rotterdam, 200 bgs. Hamburg, 31 Waste Salt— Hamburg, 610 cks 498 bgs 697 t.	GRIMSBY. Week ending July 15th. Aluminium— Dieppe, 3 cks. Chemicals (otherwise undescribed) Antwerp, 31 cs. 7 pkgs. Hamburg, 15 Dyestuffs (otherwise undescribed) Dieppe, 5 cks. Farina— Hamburg, 140 bgs. Zinc Ashes— Antwerp, 24 cks.
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EXPORTS OF CHEMICAL PRODUCTS

OF

THE PRINCIPAL PORTS OF THE UNITED KINGDOM.

LONDON. ending July 19th. 9 cs. £18 19 4 c. 16 1 t. 3 c. £34 13 c. £20 m Carbonate— 10 c. £15 10 15 m Chloride— 7 c. £10 1 t. 10 47 7 11 10 17 m Nitrate— 18 rns. £159 m Sulphate— 200 t. £2,450 22 297 135 13 c. 1,780 5 t. 9 c. £78 20 kgs. 15 acid— 9 cks. £103 16 t. 2 471 Acid— 1 t. £13 22 cs. 20 30 drs. 27 Soda— 15 c. £25 2 t. 15 6 3 57 10 3 89 4 47 3 5 34 of Lime— 9 c. £5 3 t. 15 41 20 cs. 18 id— 2 t. 10 c. £420 1 5 193 1 cs. 9 8 cks. 212 4 31 4 32 10 ple, 2 17 4 31 6 51 ducts— 1 cs. £46 136 cks. £985	Benzol Rotterdam, 234 cks. 26 drs. £1,216 Hamburg, 14 138 Creosote Huelva, 4,243 brls. £1,503 Naphtha Sydney, 20 drs. £10 Pitch Boston, 300 brls. £150 St. Johns, N.F., 100 33 Suez, 10 cks. 10 Philadelphia, 650 bgs. 1,230 pkgs. 389 Tar Treport, 24 cks. £14 Mauritius, 15 runs 12 St. Johns, N.F., 45 pkgs. 21 Boston, 100 brls. 50 Tar Oil Stettin, 100 brls. £43 Treport, 26 15 Paris, 20 cks. 50 Marseilles, 6 10 Toluol Treport, 2 cks. £21 Copperas— Mauritius, 1 t. 5 c. £10 Copper Sulphate— Lyttelton, 2 t. £33 Wellington, 10 c 9 Odessa, 5 80 Cream of Tartar— Hobart, 10 c. £41 Sydney, 3 t. 5 252 Disinfectants— Colombo, 26 pkgs. 6 c. £42 Bombay, 9 t. 3 92 London, Ont., 5 cks. 40 Natal, 29 cs. 40 Valencia, 17 45 Flowers of Sulphur— Melbourne, 13 c £7 Hobart, 1 t. 7 Manure— Gothenburg, 34 t. 9 c. £92 Las Palmas, 30 130 Riga, 452 3 1,135 Madeira, 26 1 230 Canaries, 10 2 83 Treport, 48 288 Phosphoric Acid— Boulogne, 7 c. £25 Phosphorus— Hobart, 4 c. £51 Potash— Canterbury, 6 c. £7 Suez, 6 10 Potash Crystals— Brussels, 13 c. £94 Potassium Bichromate— Calcutta, 11 c. £24 Potassium Chlorate— Odessa, 1 t. 15 c. £110 Potassium Nitrate— Canaria, 10 c. £9 Saltpetre— Antwerp, 2 t. £43 Algou Bay, 11 c. £13 Dunedin, 1 22 Rio de Janeiro, 7 8 166 Bahia, 8 7 188	Sheep Dip— Sydney, 150 drs. £124 Rangoon, 60 12 E. London, 250 3 cs. 3 t. 169 Melbourne, 100 325 pkgs. 524 Cape Town, 3 t. 14 c. 120 Geraldton, 1 15 73 Soda— Nelson, 1 t. £8 Cape Town, 4 12 Tenerife, 2 11 c. 28 Soda Ash— Melbourne, 24 t. £113 Soda Crystals— Bremen, 10 c. £5 Soda Salts— New York, 3 t. 2 c. £75 Sodium Bicarbonate— E. London, 10 c. £9 Singapore, 5 9 Sodium Hyposulphite— Yokohama, 2 t. 10 c. £15 Sodium Oxalate— Demerara, 5 t. 6 c. £160 Sulphur— Dunedin, 3 t. £23 Algou Bay, 1 1 c. 8 E. London, 95 pkgs. 60 Sulphuric Acid— E. London, 25 pkgs. £27 Rio de Janeiro, 8 cs. 11 Superphosphate— Libau, 286 t. £83 Konigsberg, 135 465 Newfairwater, 73 18 c. 260 Canaria, 7 10 c. 30 Tartaric Acid— Natal, 5 c. £25 Nelson, 3 15 E. London, 1 brl. 10 Wellington, 5 23 Rio de Janeiro, 2 13 Sydney, 2 t. 5 231 Tin Salts— Riga, 5 c. £17	Ammonium Sulphate— Rotterdam, 50 t. £675 Sourabaya, 257 4 c. 2 q. 2,962 Cheribon, 78 19 2 800 Samarang, 25 13 3 326 Barbados, 50 7 2 659 Guttufesky, 20 5 3 260 Las Palmas, 30 18 3 417 Valencia, 98 4 3 1,350 Asbestos— Sydney, 4 cs. 1 ck. Tatal, 1 Pernambuco, 1 Bleaching Powder— Baltimore, 111 cks. Boston, 1,031 37 brls. B. Ayres, 45 Havre, 37 Montreal, 51 New York, 460 105 Oporto, 30 Port los Angeles, 51 50 cs. Calcutta, 8 Maranham, 8 Rouen, 15 Bone Waste— Rouen, 10 t. 15 c. £75 Boracic Acid— Havre, 5 t. £178 Havana, 3 c. 6 Borax— Antofagasta, 1 t. 6 c. £46 Alexandria, 9 13 Antwerp, 16 17 504 Rotterdam, 25 747 Hamburg, 9 34 270 Stettin, 12 19 Melbourne, 10 2 10 Adelaide, 14 3 22 Calcined Magnesia— Genoa, 1 cs. Calcium Chloride— New York, 10 t. £6 Carbolic Acid— B. Ayres, 6 t. 15 c. 3 q. £258 Rouen, 5 8 216 Bombay, 1 8 23 Montreal, 9 36 Shanghai, 11 18 Copenhagen, 1 65 M. Video, 4 cs. 6 Rotterdam, 2 5 2 13 New York, 2 9 137 Castor Oil— M. Video, 3 cs. Caustic Soda— Adelaide, 85 dms. Alicante, 7 135 brls. Baltimore, 7 Barcelona, 100 53 cks. Bilbao, 30 Campecha, 24 Genoa, 136 Hamburg, 185 Hong Kong, 64 2 Leghorn, 135 Malaga, 48 Malmo, 18 M. Video, 15 New York, 633
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LIVERPOOL.

Week ending July 19th.

Alum— Cape Town, 2 t. £12 Lisbon, 10 5 c. 50 Melbourne, 2 10 15 M. Video, 3 1 Alexandria, 13 78 Ibrail, 6 15 44 Havana, 1 7 2 q. 7 Al-minous Cake— Calcutta, 17 t. 11 c. 1 q. £64 Ammonium Carbonate— Stockholm, 9 c. 1 q. £11 Rio Janeiro, 7 3 15 Guttufesky, 4 10 159 Ammonium Chloride— Montreal, 5 c. 2 q. £10 Syra, 5 3 Vera Cruz, 3 5
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Porto, Alegre,	25 kgs.
Puerto Cabello,	30 dms.
Rosario,	30
St. Petersburg,	15 brls.
Shanghai,	104
Valparaiso,	30
Batavia,	20
B. Ayres,	30
Callao,	35
Carthage, Sp.,	6
Chicago,	200
Galatz,	46
Guantanamo,	20
Hio,	60
Malta,	30
Newcastle,	30
Odesa,	300
Rouen,	84
Santander,	15
Seville,	24
Talcahuano,	30
Wilmington,	7 cks.

Chemicals (otherwise undescribed)

Marseilles,	7 c. 1 q.	£12
Ibrail,	11	17
Shanghai,	2	10
B. Ayres,	5	9
Rotterdam,	17	26
Piraeus,	3	6
Alexandretta,	10	17

China Clay—

Boston,	60 t.
Calcutta,	25
Genoa,	5
Kurrachee,	20
Maranham,	15
Moncton,	10
Trieste,	20 cks.

Coal Products—

Aniline Colours	
Genoa,	1 cs.
Canada,	5 cks.

Aniline Oil	
Genoa,	16 dms. 10 tins.

Aniline Salt	
New York,	50 cs. 84 cks.

Pitch	
Bordeaux,	81 t.

Tar	
Galatz,	25 brls.

Tar	
Ibrail,	10

Tar	
Penang,	100

Copperas—

Rio Janeiro,	17 c. 3 q.	£5
Valparaiso,	1 t. 4	3
Calcutta,	13	24

Copper Sulphate—

Rouen,	32 t. 19 c.	£527
Oporto,	6	12
Trieste,	8	5

French Chalk—	
Maranham,	10 bgs.

Gypsum—

Montreal,	20 t.	£10
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Iron Oxide—

Genoa,	1 t. 10 c.	£22
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Lime—

Maranham,	10 cks.
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Magnesia—

B. Ayres,	1 cs. 2 cks.
Paris,	80

Magnesium Chloride—

Bombay,	10 t. 1 c.	£25
Moncton, N.B.,	6	9

Magnesium Sulphate—

Rio Janeiro,	15 kgs.
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Manganese—

Vigo,	3 brls.
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Manure—

Christiania,	10 c. 3 q.	£14
Gr. Canary,	5 t.	65

Metallic Sodium—

Rotterdam,	2 t. 15 c.	£604
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Mineral White—

Maranham,	25 bgs.
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Orchil (liquor)

New York,	5 t.	£193
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Paint—

Amsterdam,	6 dms. 7 kgs.
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Bremerhaven,	30
Colombo,	17 cks.

Conakry,	3
Curacao,	2

Curacao,	2	
Gibraltar,	15	41

Humacao,	3	67
Lisbon,	16	100

Humacao,	3	
Limon,		67

Pernambuco,	1	40
San Benito,	1	2

Sydney,	1	8
Antwerp,	1	5

Calcutta,	4	3
Cienfuegos,	4	5

Hamburg,	3	3
Ponce,	1	3

Rio Janeiro,	3	18
St. John's, Nfd.,	18	475

Calcutta,	8
Cienfuegos,	4

Painters' Colours—

Alexandria,	240 kgs.
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Algoa Bay,	6 cks. 204	100 dms.
Antwerp,	2	12 brls.

Arecibo,	2	25
Benguella,	2	30

Bombay, 12 cs.	100	30
B. Ayres, 10	55	10

Calcutta,	4	19 cs.
Cartagena, S.A.,		4

Corfu,		3
Guantanamo,		36

Havana,		14
Lisbon,		12

Manaos,	4	20
Quebec,	4	

Rangoon,	2	
Taltal,	1	

Valparaiso,		3 dms.
Vigo,	1	2 brls.

Baltimore,	117	5
Boca,	14	

Galatz,	140	
Gothenburg,	100 bgs.	

Hamburg,	10	
Maceio, 2 cs.		13

Maranham,	4	10
Naples,		13

Salonica,	13	14
Santander,		

Paraffin Wax—

Bari,	500 bgs.	1 cs.
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Bordeaux,		17
Pernambuco,		15

Leghorn,	25	
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Phosphorus—

Havana,	2 cs.	£22
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Shanghai,	20	201
Vera Cruz,	8	108

Pieric Acid—

New York,	17 c. 2 q.	£80
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Plumbago—

Rosario,	6 cks.
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Potassium Bicarbonate—

Alexandria,	1 t. 2 c. 1 q.	£47
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Potassium Bichromate—

Aleppo,	18 c. 1 q.	£135
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Calcutta,	1 t.	22
Constantinople,	2	1

Trebizonde,	2	1
Samsoun,	1	5

Potassium Chlorate—

Antwerp,	3 t. 12 c.	£249
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Oporto,	15	46
Hamburg,	1	74

Gothenburg,	3	189
Naples,	1	75

Genoa,	5	15
Randers,	1	61

Cape Town,	1	62
Havana,	1	72

Shanghai,	4	289
Vera Cruz,	1	67

Stettin,	2	10
Ghent,	1	10

New York,	12	10
Bilbao,	12	45

Copenhagen,	3	15
Danzig,	1	10

St. Petersburg,	26	5
Yokohama,	25	1,725

Potassium Oxalate—

Boston,	10 t. 16 c. 1 q.	£275
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Potassium Silicate—

Rosario,	1 t.	£8
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Salt—

Accra,	5 t.
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Akassa	400	
Algoa Bay,	8	16 c.

Amsterdam,	168
Antwerp,	85

Baltimore,	175
Benin,	5

Boma,	5
Boston,	400

Calcutta,	2,928
Cape Town,	15

Halifax,	142
Iceland,	156

Matadi,	5
Melbourne,	125

Montreal,	391
Rotterdam,	267

Matadi,	5
Melbourne,	105

Brussels,	1
Chittagong,	2,713

Ghent,	390
Guayaquil,	1

St. John s, N. B.	1047	14
Sydney,	1,102	

Richibucto,	252
Shediac,	520

Sherbro,	50
Victoria,	75

Warri,	7	16
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Saltcake—

Ghent,	201 t.	£241
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Saltpetre—

Piraeus,	3 t. 15 c.	£80
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Cabadello,	1	14
Pernambuco,	1	7

Maceio,	1	2
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Sheep Dip—

Calcutta,	2 t. 2 c. 2 q.	£46
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M. Video,	2	4
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Soap—

Accra,	100 bxs.
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Algoa Bay,	2,480	105 cs.
Amsterdam,	50	79

Bakana,		5
Belize,	250	

Bordeaux,	55	
Buguma,	1	250 blls.

Calcutta,		4
C. C. Castle,	140	

Cape Town,	1,574	25
Constantinople,	30	

Copenhagen,	30	
E. London,	2,990	60

Genoa,	60	
Gibraltar,	480	20 kgs.

Gr. Canary,	235	
Guayaquil,	200	

Jersey,	20	
Kingston, Jam.,	1,200	

Malta,	4	
Monrovia,	60	

New York,	1,150	
Palma,	224	

Pt. Elizabeth,	590	
Pt. Natal,	557	

Rio de Janeiro,		3
St. John's, Nfd.,	50	

St. Lucia,	60	
Salt Pond,		2

Sandy Point,	1	
San Sebastian,	1	

Shanghai,	1,650	
Sydney,	1,480	

Teneriffe,	335	
Valparaiso,	300	

Alexandria,	60	
Axim,	50	

Barbadoes,	750	
Bombay,	200	51

Brussels,		410
B. Ayres,		2

Curacao,	95	50
Hamburg,		10

Las Palmas,	440	
Lisbon,		5

Maceio,		1
Pelotas,		100

Rotterdam,		20
Salonica,		30

San Domingo,		3
San Fernando,		3

Savanna,		6
Singapore,		750

Smyrna,		400
Toronto,		

JULY 29, 1893:

Sodium Tartrate —			
Montreal, 1 ck.			
Resorcin —			
Savannah, 40 cs.			
Sulphur —			
Boston, 200 t. 8 c.	£772		
Pernambuco, 3	8	2 q.	21
Sulphuric Acid —			
Iquique, 4 t.	£36		
Macedo, 1	7 c.		14
Turpentine —			
Boca, 2 cks.			
Salonica, 3			
Yarnish —			
Barcelona, 2 cs.			
Bombay, 6 brls.			
Shanghai, 45 dms.			
Genoa, 4 cks.			
Macedo, 2			
St. John, Nfld., 1	1 cs.		
White Lead —			
St. Thomas, 2 cks.			
Iron Chloride —			
Bombay, 10 t. 4 c.	1 q.	£168	

HULL.

Week ending July 15th.

Alkali —			
Drontheim, 15 dms.			
Ammonium Sulphate —			
Hamburg, 750 bgs.			
Marseilles, 565			
Benzol —			
Rotterdam, 48 cks.			
Washing Powder —			
Dunkirk, 22 cks.			
Helsingfors, 20			
Naples, 56			
New York, 38			
Caustic Soda —			
Abo, 15 cs.			
Konigsberg, 18 dms.			
Naples, 60			
St. Petersburg, 10 cks.			
Chemicals (otherwise undescribed)			
Alexandria, 25 cs. 15 cks.			
Amsterdam, 3			
Antwerp, 8 pks.			
Abo, 10	100		
Bremen, 19			
Bergen, 10			
Copenhagen, 1	20		
Constantinople, 75			
Christiania, 25	3 pks.		
Drontheim, 15 pks.			
Fleming, 10			
Gothenburg, 10	20	7	
Helsingfors, 13			
Hamburg, 11	198		
Konigsberg, 6			
Leghorn, 12			
Marseilles, 15			
Naples, 50			
Odessa, 58			
Riga, 24			
Rotterdam, 55	45		
Stettin, 198			
St. Petersburg, 2	7	6 pks.	
Ulmaborg, 1			
Wasa, 2	20		
Cottonseed Oil —			
Amsterdam, 21 c.			
Antwerp, 100			
Fleming, 300			
Hamburg, 552			
Konigsberg, 100			
Leghorn, 100			
Marseilles, 300			
Rotterdam, 1,477			
Stettin, 133			
Greosote —			
Hamburg, 30 cks.			
Dyestuffs (otherwise undescribed)			
Antwerp, 1 ck.			
Hamburg, 1			
Rotterdam, 4 bls.			
St. Petersburg, 41	100	3 cs.	
Linseed Oil —			
Antwerp, 6 c.			
Abo, 41			
Bergen, 27			
Christiansand, 6			
Christiania, 627			
Drontheim, 127			
Gothenburg, 7			
Hamburg, 316			
Rotterdam, 235			
Manure —			
Hamburg, 146 bls.			

Mineral White —			
Hamburg, 20 cks.			
Haringen, 200 bls.			
Ochre —			
Copenhagen, 3 cks.			
Painters' Colours —			
Amsterdam, 1 cs. 4 cks.			
Antwerp, 233 pks. 1	159	56 dms.	
Abo, 10	2		
Bremen, 8			
Copenhagen, 30			
Constantinople, 10 pks.			
Christiania, 100 pks.			
Dunkirk, 1	4		
Gothenburg, 5	56		
Genoa, 29			
Hamburg, 4	26		
Haringen, 6			
Leghorn, 66			
Marseilles, 10			
Naples, 1	6		
New York, 253	37		
Odessa, 263			
Rotterdam, 50			
Rouen, 8			
St. Petersburg, 1	151		
Stettin, 69			
Wasa, 2			
Pitch —			
Antwerp, 480 t. 4 cs.			
Naples, 120 cks.			
Size —			
Copenhagen, 2 cks.			
Flushing, 22			
Soap —			
Christiania, 125 cs.			
Drontheim, 20			
Helsingfors, 27			
Tar —			
Abo, 25 cks.			
Bremen, 50			
Dunkirk, 25			
Gothenburg, 150			
Genoa, 4			
Hamburg, 7			
Odessa, 100			
Ulmaborg, 70			
Turpentine —			
Helsingfors, 10 cks.			
Yarnish —			
Amsterdam, 1 cs.			
Antwerp, 2	2 bls. 2 cks.		
Copenhagen, 4	1 dm. 2		
Gothenburg, 2			
Genoa, 2			
Hamburg, 5 bls. 1			
Leghorn, 2	4 dms. 4		
Naples, 2	1		

GLASGOW.

Week ending July 20th.

Alkali —			
Hamburg, 3½ c.	£5		
Bleaching Powder —			
Hong Kong, 15 t.	£150		
Boracic Acid —			
Hamburg, 1 ck.	£6		
Borax —			
Quebec, 3 t. 11½ c.	£113		
Coal Products —			
Benzol			
Hamburg, 4 dms.	£42		
Greosote Oil —			
Christiania, 20 brls.	£10		
Pitch —			
Quebec, 84 t. 19 c.	£131		
Philadelphia, 19	11	30	
Hamburg, 14	2	50 cks.	31
Tar —			
Philadelphia, 35 t. 3 c.	£75		
Christiania, 4 brls.	2		
Hamburg, 142 cks.	61		
Colours —			
Cape Colony, 2 t. 6½ c.	£34		
Dyestuffs —			
Extracts			
Quebec, 11 t. 8½ c.	£394		
Fustic Extract —			
Quebec, 13½ c.	£32		
Glucose —			
Cape Colony, 16 t.	£265		
Guano —			
Tonsberg, 200 bgs.			
Linseed Oil —			
Cape Colony, 2 t. 1½ c.	£54		
Alexandria, 4	1½	85	
Quebec, 16	5½	168	
Montreal, 10	3½	95	

Manganese Oxide —			
Philadelphia, 10 t. 4 c.	£105		
Paint —			
Hong Kong, 3 t. ½ c.	£51		
Cape Colony, 1	5	£33. 148	
Alexandria, 15	5½	20 12	
Rangoon, 4	7½	134	
Cadiz, 4	7½	65	
Painters' Colours —			
Natal, 1	£32		
Mauritius, 25 t. 4 c.	347		
Calcutta, 1 ck.	407		
Rotterdam, 1	3		
Paraffin Wax —			
Cape Colony, 4 t. 15½ c.	£150		
Italy, 39	18½	925	
Hamburg, 30 cs.	69		
Potassium Bichromate —			
Quebec, 4 t. 17½ c.	£195		
Italy, 6	1½	252	
Hamburg, 7 cks.	73		
Rotterdam, 20	327		
Pyrolignite —			
Hamburg, 1 t. 15 c.	£18		
Salt —			
Japan, 3 t. 16½ c.	£67		
Soap —			
New York, 11 c.	£21		
Demerara, 3	40		
Sodium Bichromate —			
Italy, 40 t. 1½ c.	£1,294		
Sulphuric Acid —			
Rangoon, 60 t. 19 c.	£355		
Tannin —			
Rotterdam, 14 cks.	£230		
White Lead —			
Hong Kong, 2 t.	£45		
Cape Colony, 3	2 c.	63	
Zinc White —			
Hong Kong, 10 t.	£245		

TYNE.

Week ending July 15th.

Alkali —			
Venice, 9 t. 12 c.			
St. Petersburg, 58	17		
Rotterdam, 1	2		
Amsterdam, 13	18		
Riga, 58	11		
Gothenburg, 3	1		
Alum —			
Rotterdam, 10 t.			
Ammonia Alkali —			
Aarhus, 10 t.			
Ammonia Salts —			
St. Petersburg, 35 t. 7 c.			
Ammonium Carbonate —			
St. Petersburg, 8 t. 15 c.			
Ammonium Chloride —			
St. Petersburg, 8 t. 14 c.			
Ammonium Sulphate —			
Hamburg, 50 t.			
Antimony —			
Hamburg, 1 t.			
Barcelona, 1	1 c.		
Rotterdam, 5			
Arsenic —			
Christiania, 1 t. 4 c.			
Asbestos —			
Antwerp, 1 c.			
Barium —			
Dunkirk, 14 t. 14 c.			
Barium Hydrate —			
Antwerp, 53 t. 5 c.			
Barytes —			
Venice, 4 t.			
Hamburg, 249	9 c.		
St. Petersburg, 8	1		
Bleaching Powder —			
Reval, 32 t. 11 c.			
Venice, 11	11		
Hamburg, 88	14		
Antwerp, 40	7	60 cks.	
Lisbon, 5	9		
Christiania, 2	4		
Horsens, 1	9		
St. Petersburg, 286	3		
Rotterdam, 7	9		
Copenhagen, 14	10		
Amsterdam, 11	16		
Gothenburg, 41	2		
Danzig, 30	1		
Rouen, 4	18		
Riga, 33	3		
Drontheim, 10	2		

Castor Oil —			
Christiania, 16 c.			
Caustic Soda —			
Venice, 17 t. 8 c.			
Galatz, 35	16		
Hamburg, 4	7		
Antwerp, 7	14		
Lisbon, 5	3		
St. Petersburg, 112	6		
Copenhagen, 11	12		
Riga, 18	1		
Colours —			
Hamburg, 1 c.			
Litharge —			
Gothenburg, 2 t. 14 c.			
Hamburg, 1	2		
Lisbon, 10	16		
St. Petersburg, 10			
Riga, 21			
Magnesia —			
Hamburg, 19 c.			
Antwerp, 12			
Barcelona, 14 t. 10			
Ochre —			
Christiania, 3 t. 4 c.			
Drammen, 2	8		
Drontheim, 11			
Paint —			
Venice, 1 t. 10 c.			
Antwerp, 19			
Christiania, 4			
Soda —			
Venice, 70 t. 18 c.			
Gothenburg, 10	1		
Arendal, 5			
Christiania, 10	1		
Aarhus, 10	7		
Nakskov, 14	15		
Svendborg, 5			
Rotterdam, 10	6		
Drontheim, 20	6		
Bergen, 5	18		
Soda Ash —			
Hamburg, 37 t. 8 c.			
Antwerp, 9	18		
Horsens, 1	6		
Bergen, 5	3		
Riga, 6	10		
Sodium Hyposulphite —			
Barcelona, 4 c.			
Sodium Sulphate —			
Christiania, 11 t.			
Copenhagen, 1	5 c.		
Sulphur —			
Reval, 1 t.			
Gothenburg, 25			
Antwerp, 27	11 c.		
Malmo, 10			
Christiania, 10			
Drammen, 150			
Gothenburg, 25			
Riga, 75			
Superphosphate —			
Reval, 100 t.			
Riga, 242	14 c.		
White Lead —			
Copenhagen, 2 t. 7 c.			
Riga, 9	1		
Gothenburg, 2	10		

GOOLE.

Week ending July 12th.

Benzol —			
Ghent, 64 dms.			
Chemicals (otherwise undescribed)			
Ghent, 1 ck. 8 pks.			
Rotterdam, 93			
Hamburg, 45			
Coal Products (otherwise undes.)			
Antwerp, 49 cks.			
Boulogne, 46			
Ghent, 16			
Hamburg, 25			
Rotterdam, 26			
Dyestuffs (otherwise undescribed)			
Ghent, 10 dms.			
Manure —			
Hamburg, 200 bgs.			

GRIMSBY.

Week ending July 15th.

Chemicals (otherwise undescribed)			
Dieppe, 6 cks. 1 cs. 140 pks. 32 bls.			
Hamburg, 8			
Coal Products (otherwise undes.)			
Dieppe, 1 cs. 111 cks.			

PRICES CURRENT.

WEDNESDAY, JULY 26th, 1893.

PREPARED BY MESSRS. HIGGINBOTTOM AND CO., 116, PORTLAND STREET, MANCHESTER.

The values stated are F.O.R. at maker's works, or at usual ports of shipment in U.K. The price in different localities may vary.

Acids:—

	£	s.	d.
Acetic, 25 % and 40 %	per cwt	7/-	& 10/6
„ Glacial	„	50/-	
Arsenic S.G., 2000°	„	0	14 6
Fluoric	per lb.	0	0 3½
Muriatic (Tower Salts), 30° Tw.	per bottle	0	0 10
„ (Cylinder), 30° Tw.	„	0	3 0
Nitric 80° Tw.	per lb.	0	0 1½
Nitrous	„	0	0 1½
Oxalic	nett	0	0 3
Phosphoric, 1750°	„	0	1 2½
Picric	„	0	1 0
Sulphuric (fuming 50 %)	per ton	15	10 0
„ (monohydrate)	„	5	10 0
„ (Pyrites, 168°)	„	3	0 0
„ 150°	„	1	5 0
„ (free from arsenic, 145°)	„	1	6 0
Sulphurous (solution) S.G. 1025	„	3	0 0
Tannic (pure)	per lb.	0	1 2
Tartaric	„	0	11 ½
Arsenic, white powdered	nett	per ton	13 15 0
Alum (loose lump)	„	5	2 6
Alumina Sulphate (pure)	„	5	0 0
Aluminoferic	„	2	10 0
Aluminium	per lb.	0	4 0
Ammonia, Anhydrous	„	0	1 2
„ 880=28°	per lb.	0	0 2½
„ =24°	„	0	0 2
„ Carbonate	nett	0	0 3½
„ Muriate	per ton	22	10 0
„ (sal-ammoniac) 1st & 2nd	per cwt.	37/-	& 35/-
„ Nitrate	per ton	42	0 0
„ Phosphate	per lb.	0	0 10½
„ Sulphate (grey) London	per ton	13	7 6
„ (grey) Hull	„	13	7 6
Aniline Oil (pure)	per lb.	0	0 6
Aniline Salt	„	0	0 5½
Antimony	per ton	45	10 0
„ (tartar emetic)	per lb.	0	1 0
„ (golden sulphide)	„	0	0 10
Barium Chloride	per ton	7	10 0
„ Carbonate (native)	„	3	10 0
„ Sulphate (native levigated)	„	45/-	to 75/-
Bleaching Powder, 35 %	nett	„	8 0 0
„ Liquor, 7 %	„	3	10 0
Bisulphide of Carbon	„	11	15 0
Chromium Acetate (crystal)	per lb.	0	0 6
Calcium Chloride	per ton	2	5 0
China Clay (at Runcorn) in bulk	„	17/6	to 35/-
Coal Tar Products and Dyes:—			
Alizarine (artificial) 20 %	net	per lb.	0 0 8
Magenta	„	0	3 9
Anthracene, 30 % A, f.o.b. London	per unit	per cwt.	0 1 2
Benzol, 90 % nominal	per gallon	0	1 4
„ 50/90	„	0	1 4
Carbolic Acid (crystallised 40°)	per lb.	0	0 7
„ (crude 60°)	per gallon	0	1 8
Creosote (ordinary)	„	0	0 1
„ (filtered for Lucigen light)	„	0	0 1½
Crude Naphtha 30 % @ 120° C.	„	0	0 7
Grease Oils, 22° Tw.	per ton	2	5 0
Pitch, f.o.b. Liverpool or Garston	„	1	5 0
Solvent Naphtha, 90 % at 160°	per gallon	0	0 11
„ Lucigen and „ Wells Oils	„	0	0 1½
Copper	per ton	42	15 0
„ Sulphate	„	16	0 0
„ Oxide (copper scales)	„	40	0 0
Glycerine (crude)	„	13	0 0
„ (distilled S.G. 1250°)	„	43	0 0
Iodine	nett, per oz.	0	0 9
Iron Sulphate (copperas)	per ton	1	12 6
„ Sulphide (antimony slag)	„	2	0 0
Lead (sheet) for cash	„	11	5 0
„ Litharge Flake (ex ship)	„	13	0 0
„ Acetate (white)	„	25	15 0
„ „ (brown)	„	17	10 0
„ Carbonate (white lead) pure	„	20	0 0
„ Nitrate	„	20	0 0

	£	s.	d.
Lime, Acetate (brown)	per ton	5	17 6
„ (grey)	„	10	0 0
Magnesium (ribbon and wire)	per oz.	0	2 3
„ Chloride (ex ship)	per ton	2	7 6
„ Carbonate	per cwt.	1	17 6
„ Hydrate	per ton	17	0 0
„ Sulphate (Epsom Salts)	per ton	2	19 0
Manganese, Sulphate	„	17	15 0
„ Borate	per cwt.	2	12 6
„ Ore, 70 %	per ton	4	5 0
Methylated Spirit, 61° O.P.	per gallon	0	2 0
Naphtha (Wood), Solvent	„	0	3 6
„ Miscible, 60° O.P.	„	0	4 0
Oils:—			
Cotton-seed	per ton	24	0 0
Linseed	„	22	10 0
Lubricating, Scotch, 890°—895°	„	7	5 0
Petroleum, Russian	per gallon	0	0 4
„ American	„	0	0 5½
Potassium (metal)	per oz.	0	3 7
„ Bichromate	nett	per lb.	0 0 4½
„ Carbonate, 90% (ex ship)	per ton	16	15 0
„ Chlorate	per lb.	0	0 8
„ Cyanide, 98%	„	0	2 0
„ Hydrate (Caustic Potash) 80/85 %	per ton	21	10 0
„ „ (Caustic Potash) 75/80 %	„	20	10 0
„ „ (Caustic Potash) 70/75 %	„	20	0 0
„ Nitrate (refined)	per cwt.	1	2 6
„ Permanganate	per cwt.	3	5 0
„ Prussiate Yellow	per lb.	0	0 9
„ Sulphate, 90 % (ex ship)	per ton	9	15 0
„ Muriate, 80 % (do.)	„	8	0 0
Silver (metal)	per oz.	0	2 8½
„ Nitrate	„	0	2 10
Sodium (metal)	per lb.	0	3 4
„ Carb. (refined Soda-ash) 48 %	nett	per ton	5 17 6
„ „ (Caustic Soda-ash) 48 %	„	4	15 0
„ „ (Carb. Soda-ash) 48 %	„	4	15 0
„ „ (Carb. Soda-ash) 58 %	„	4	10 0
„ „ (Soda Crystals)	„	2	17 6
„ Acetate (ex-ship)	„	16	0 0
„ Arseniate, 45 %	„	12	0 0
„ Chlorate	per lb.	0	0 9
„ Borate (Borax)	net, per ton	29	0 0
„ Bichromate	per lb.	0	0 3
„ Hydrate (77 % Caustic Soda) (f.o.b.) net pr. ton	„	11	0 0½
„ „ (74 % Caustic Soda)	„	10	10 0
„ „ (70 % Caustic Soda)	„	9	10 0
„ „ (60 % Caustic Soda)	„	8	10 0
„ „ (60 % Caustic Soda, cream) (f.o.b.)	„	8	5 0
„ Bicarbonate	„	6	10 0
„ Hyposulphite	„	6	10 0
„ Manganate, 30%	„	16	0 0
„ Nitrate (95 %) ex-ship Liverpool	per cwt.	0	10 0
„ Nitrite, 98 %	per ton	27	10 0
„ Phosphate	„	15	0 0
„ Prussiate	per lb.	0	0 7
„ Silicate (glass)	per ton	5	7 6½
„ „ (liquid, 100° Tw.)	„	4	5 0
„ Stannate, 40 %	per cwt.	3	0 0
„ Sulphate (Salt-cake)	per ton	1	4 0
„ „ (Glauber's Salts)	„	1	10 0
„ Sulphide	„	8	10 0
„ Sulphite	„	6	5 0
Strontium Hydrate, 100%	„	8	10 0
Sulphocyanide Ammonium, 95 %	per lb.	0	0 7
„ „ Barium, 95 %	„	0	0 5½
„ „ Potassium	„	0	0 7
Sulphur (Flowers)	per ton	8	0 0½
„ (Roll Brimstone)	„	6	10 0
„ Brimstone: Best Quality	„	4	2 6
Superphosphate of Lime (26 %)	„	2	7 6
Tallow	„	27	10 0
Tin (English Ingots)	„	87	0 0
„ Crystals	per lb.	0	0 6
Zinc (Spelter)	per ton	17	12 6½
„ Chloride (solution, 96° Tw.)	„	5	15 0

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rtisements intended for insertion in the current week's issue
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CURRENT TOPICS.

THE CHEMIST AND THE MANAGING DIRECTOR.

A CASE which promised to be an interesting one was
down for hearing last Tuesday at the Liverpool Assizes,
in the Nisi Prius Court, before Mr. Justice Kennedy and a
special jury, in which a Mr. Herman Aldendorff, chemist
and chemical engineer, sought to recover damages from
Murgatroyd's Ammonia-Soda, and Salt Syndicate, Limited,
for wrongful dismissal.

According to the facts of the case, the situation seems to
have arisen in this way. In the end of July, 1891, a company
was formed under the above-named title to acquire certain
freehold property situate at Middlewich, Cheshire, and to
erect works for the manufacture of soda ash and other
chemical products; and also to erect machinery for working
the rock salt and brine under the said estate.

About this time the plaintiff was engaged, under an agree-
ment, to erect the works, and afterwards to manage the
manufacturing arrangements for the production of the soda
ash, &c. By his agreement he was to be engaged for ten
years at a salary of £500. per annum, to be increased as
dividends rose up to a maximum sum of £1,000. The agree-
ment further provided that if the company should determine
the same at any time without sufficient reason, the plaintiff
should be entitled to £1,500. as liquidated damages. The
erection of the works was begun shortly after the formation
of the company, under the supervision of the plaintiff, their
erection having occupied from that time up till January, 1893.

In the present year differences seem to have arisen
between the plaintiff and the managing director (Mr.
Murgatroyd), which were apparently attributable to certain
views held as to the plaintiff's position under his contract,
and in consequence of which the directors dismissed the
plaintiff, who now sought to recover the damages to which
he was entitled under his agreement, unless sufficient grounds
were adduced for his dismissal.

The case, however, was destined never to be heard at
length, as by the time counsel had opened the case to the
jury, and the plaintiff had given his evidence, an intimation
was made to the Court that an agreement had been arrived
at between the parties (who agreed to withdraw the record),
counsel for the defendants stating that had the case been
proceeded with, his clients would not have found it necessary
to make any imputation upon either the ability or business
character of the plaintiff; the counsel for the latter likewise
explaining that Mr. Aldendorff's compliance with the terms
of the agreement had in a large measure been secured, owing
to the understanding that a withdrawal of any intention to
make charges upon his capacity or integrity had been made.
The record was, therefore, withdrawn, and so the matter
ended.

EVERYTHING COMES TO HIM WHO WAITS.

Just when there is so much disturbance in trade, and especially in the chemical trade, owing to the labour disputes in the coal industry, or, as it is now almost universally dubbed, "The Coal War," it is not surprising to hear inquiries from certain quarters as to the general welfare and movements of the Royal Commission on Labour. We could do very well just now with a little of the counsel and help which doubtless will be given to those interested in the questions of capital and labour, in the weighty conclusions (and tomes) which the twenty-seven worthy Commissioners must have arrived at by now. The evidence was concluded last Christmas, and it is now more than two years since the Commission began to sit. It is rather saddening, therefore, to learn that in the opinion of the Prime Minister there is but little hope of the report being ready much before the close of this year. There ought to be some valuable information in that report, if it is to be contrasted with the cost of compiling the same, or it will make a poor show. Judging from the past, the expenses of the commission *pro rata* will come up to somewhere near £30,000—a very tidy sum for the tax-paying community to devote to this purpose.

THE POLLUTION OF THE IRWELL AND MERSEY.

SUMMONSES HEARD.

THE BACUP CORPORATION.

THE decision of the magistrates in the Bacup case was given in these columns last week. The following is an account of the hearing of the summons, which was supported by Mr. Wilson (Preston), and the Chief Inspector (Mr. R. A. Tatton). The Bacup Corporation was represented by their Town Clerk (Mr. J. Heyworth).

Mr. Wilson said the informations were laid under part 2, section 3, of the Mersey and Irwell Act, 1892, and charged the Corporation with having, on the 13th of June and on divers days between the 13th and the 22nd of June, caused liquid sewage to flow into the river Irwell, and with having knowingly permitted it. Causing and knowingly permitting were separate offences. He understood that the question of the disposal of the sewage had been before the Corporation for some considerable time, but for reasons with which the bench were no doubt acquainted the negotiations with Rawtenstall and the other authorities seemed to have ended with no result at all. He had a letter from the Town Clerk of Bacup, dated January 12th, 1892, in which he stated that the General Works Committee instructed him to say that they had a scheme before the Local Government Board for the treatment of the sewage of the borough. The Corporation did not seem to have got beyond that stage. In February last the Chief Inspector reported to the Mersey and Irwell Joint Committee as follows:—"The position of Bacup in regard to sewage is a matter to which it is desirable to draw your attention. In May last I reported to you that negotiations were going on with the Corporations of Rawtenstall and Haslingden with a view to a joint scheme at Ewood Bridge. Those negotiations have led to no definite result, but have rather been a cause of delay in the acceptance by the Local Government Board of the Rawtenstall and Haslingden scheme. I understand that a new committee has been appointed with a view to further negotiations; but in the meantime all progress in the direction of sewage treatment of these towns, with a combined population of 70,000 persons, is at a standstill. As an alternative to joining in the Ewood Bridge scheme, Bacup is now in possession of two plots of land, comprising together nine acres, on which the sewage of the district could probably be treated. On one of these plots, filters which were constructed 26 years ago are in operation, but although they intercept a considerable proportion of the solid matter, the treatment as effected by them cannot be said to be in any way efficient." That was in February last. The Committee then passed a resolution calling on the Bacup Corporation to attend before them to show cause why proceedings should not be taken. A deputation attended and stated that they had not been able to come to terms with Rawtenstall. The further consideration of the matter was adjourned till the next meeting of the Committee in order that the Town Clerk might report the result of his negotiations with Rawtenstall. These negotiations appeared to have ended in nothing. He would like to point out to the Court that the Joint Committee believed that

the deadlock between Bacup, Rawtenstall, and Haslingden was almost entirely due to the Corporation of Bacup not meeting the other authorities as they ought to have done.

The Town Clerk of Bacup: That is not so.

Mr. Wilson said he would be very glad if Mr. Heyworth could prove that that was not so. It was, at any rate, certain that the various authorities had not come to terms, and the Joint Committee had felt it incumbent upon them to take these proceedings. There was practically no defence, the Town Council of Bacup admitting they were in default. He had arranged terms with the Town Clerk, and these were that the Corporation should be fined 2s 6d., with £2. 10s. costs, on each information, and that they should be ordered to carry out within 18 months such works as would prevent the pollution of the river.

Mr. Heyworth said that on behalf of the Corporation he admitted the charges of pollution made against them, and he would have had nothing further to say but for the course which had been taken by Mr. Wilson in attempting to lay all the blame for the delay on the Bacup Corporation. The entire blame did not rest upon them.

Mr. Wilson: I did not say the entire blame.

The Chairman asked if there was not a resolution on the minute book of the Council authorising arrangements to be made for sewage works.

Mr. Heyworth said there was, and land had been acquired for the purpose. A Local Government inquiry had been held, and the Corporation had asked for power to borrow money for the construction of the works.

The Chairman: Perhaps you can explain to us why the works have not been carried out?

Mr. Heyworth: The reason is that we have not yet received the sanction of the Local Government Board to the scheme.

The Chairman: The Local Government inquiry, I understand, took place in 1890, and you say that the Local Government Board have not yet sent a reply in reference to that inquiry?

Mr. Heyworth: Not in writing.

The Chairman: Have they replied to it in any way?

Mr. Heyworth said there had been no official communication, but certain gentlemen connected with the Local Government Board had made verbal communication to members of the Corporation.

Mr. Wilson said that the Joint Committee understood that the Local Government Board had intimated that in their opinion it was desirable that the Bacup sewage should be treated at the proposed Haslingden and Rawtenstall outfall works at Ewood Bridge, and that till the question of the disposal of the Bacup sewage was definitely settled the Local Government Board would block the way to anything further being done.

The Chairman said the difficulty seemed to be caused by the Local Government Board.

Mr. Wilson remarked that the Bacup Corporation had been informed by the Local Government Board that the scheme proposed by them was not a satisfactory scheme and since February last there had been time for them to formulate a better scheme.

Mr. Heyworth was of opinion that if Mr. Wilson knew as much about the matter as he did he would not speak so confidently as to what could be done.

Mr. Mitchell asked how the Bacup Corporation could be held responsible if the Local Government Board had come to a determination from which they would not waver.

Mr. Wilson said the Bacup Corporation had not tried to meet the views of the Local Government Board.

The Chairman could not see how it could be said that the Bacup Corporation were in default, when they had submitted a scheme to the Local Government Board in regard to which they had received no communication in writing, either approving or disapproving of it. It seemed to him that it was the Local Government Board, and not the Bacup Corporation, which ought to be summoned.

Mr. Heyworth said that without the sanction of the Local Government Board they could not carry out the works.

Mr. Wilson argued that the Joint Committee had nothing to do with the relations between the Corporation and the Local Government Board. The Town Clerk having admitted that the Corporation were in default in regard to the pollution of the river, the Bench ought to convict. The Joint Committee were willing to give a period of 18 months for the construction of works, and if at the end of that time the Corporation could show that they had used all reasonable diligence in the matter, there would, if necessary, be no difficulty in obtaining an extension of time for the completion of the scheme.

The magistrates having consulted in private, the Chairman said the decision they had arrived at was that, seeing the Town Clerk had arranged with Mr. Wilson before coming into court to submit to a penalty, they would make an order in the terms asked for.

THE ASHTON AND ABRAM CASES.

On Friday, last week, the Ashton-in-Makerfield and Abram Local Boards were summoned at Wigan by the Mersey and Irwell Joint

Committee for polluting tributaries of the Mersey. The solicitor for the Ashton Local Board admitted the pollution, and agreed to an order being made.

Mr. Wilson (Preston), who represented the Joint Committee, said the Local Board had a small farm where they treated the sewage on the broad irrigation principle. Serious pollution, however, had been reported to the committee time after time. In fact it was not only reported to the Committee that the brooks were polluted by the discharge from the sewage farm, but there were certain houses for which there was no provision whatever.—The bench made an order for the abatement, the order being suspended for three months. In the case of the Abram Local Board a plea of guilty was put in, and a similar order was made.

THE CASE OF THE JOINT SEWERAGE BOARD.

On Monday last, at the Haslingden Police Court, the Haslingden and Rawtenstall Joint Sewerage Board was summoned by the Mersey and Irwell Joint Committee for polluting the Irwell and several of its tributaries. Mr. W. H. Wilson, of the County Offices, Preston, represented the Mersey and Irwell Joint Committee, and the Board was represented by Mr. James Hindle, its clerk.

Mr. Wilson, in opening the case, pointed out that the Joint Board, by the Act which brought it into existence should have completed their outfall works for the disposal of the joint sewage of Haslingden and Rawtenstall on the 4th July this year, this being the concluding day of a period of three years allowed to the Board. The Act had not been complied with, and in consequence of the default the present proceedings were instituted by the Mersey and Irwell Joint Committee. Mr. Wilson quoted from the several Acts of Parliament having relation to pollution in the watershed and the responsibilities of authorities. The action which the Joint Committee had in contemplation against the Corporation of Haslingden was for the time being held in suspense, urgent representations having been made to the committee by the Mayor of the borough. The Joint Sewerage Board, he said, had committed a distinct offence. Their Act told them that the outfall works should now be ready. They were not ready, and it was no defence to say that the separate authorities of Haslingden and Rawtenstall had not completed the works up to the point at which the Joint Board were responsible for the united sewage. The Mersey and Irwell Committee had no desire to harass the local authorities. What they desired was to be assured that when the separate works of Rawtenstall and Haslingden were completed the Joint Board should not then be simply entering on their task of making the common outfall works. The committee, in fact, wanted a hold on the Board, to have a definite time fixed for the completion of these works in their entirety. There must be no change of plans.

Mr. Whittaker said that the Rawtenstall Corporation had already been before the Court, and had been fined. If a fine was now inflicted on the Joint Sewerage Board of Haslingden and Rawtenstall, it would not be Haslingden alone which would pay, but Rawtenstall as well, and that for a second time. Rawtenstall would, in fact, pay for the offence of Haslingden.

Mr. Wilson said all that it was wanted to secure by this prosecution was that the outfall works should be completed at the time that the separate authorities had effected the junction of their works.

At the conclusion of the arguments, the Court held that the defendants had no authority over the portion of the watershed where the offences complained of were committed. The wrong party had, in fact, been summoned. The summons would therefore be dismissed, without costs. It was stated on behalf of the defendants that the sanction of the Local Government Board having now been given to their present plans, the work would be proceeded with at once.

THE MACCLESFIELD DRAINAGE SCHEME.

The Select Committee of the House of Lords, presided over by Lord Rookwood, has finished the inquiry into the merits of the Bill, to confirm a provisional order granted to the Corporation of Macclesfield empowering them to acquire 196 acres of the Adlington Hall estate for the purposes of a sewage farm. On behalf of the case for the opponents, Mr. C. A. Brady, estate agent, Stockport, examined by Mr. Stephens, said that he was agent for Mrs. Wright, of the Mottram Hall estate. He thought if the farm were established, Mottram Hall would have to be closed. In cross-examination the witness admitted that something must be done to stop the nuisance now arising from the Macclesfield sewage, and that the site proposed for the farm was most suitable as regards soil. Evidence against the Bill was also given by Mr. Dorrington, of Bonis Hall, and by Mr. Wright, steward to Mrs. Legh, of Adlington Hall. The Committee decided to confirm the order subject to the insertion of a clause requiring that all sewage shall be filtered through tanks before being placed on the farm.

THE GERMAN TAR DISTILLING INDUSTRY.

IN describing the various chemical exhibits from Germany at the World's Fair, *Kuhlow's Review* gives an account of the tar distilling industry in that country, which is treated under the following headings:—

(1) The obtainment and working up of wood tar, which is carried out in the richly wooded districts of Germany (Hess, Alsace, Silesia). Dry beach-wood is distilled in retorts. The residual charcoal finds a good market, and the distillate is utilised for the preparation of methyl-alcohol, acetic acid, acetone and creosote.

(2) The distillation of brown-coal or lignite is exclusively carried out in the Prussian province of Saxony. The coal is slowly heated in special retorts, the residual coke (Grude) is used for burning purposes, and from the distillate are extracted paraffin, solar-oil and lubricating oils. In the year 1880, in the 20 factories of the province of Saxony with a total number of 1,536 retorts, 9,458,603 tons of lignite were distilled, yielding 48,421 tons of tar. From these were obtained:—

7,500 tons	paraffine
700 „	solar-oil
50,000 „	lubricating and gas oils
1,500 „	creosote and asphaltum

total value ten million marks.

(3) The distillation of the tar obtained as a by-product in the manufacture of gas. This manufacture has undergone vast expansion and generalisation in Germany, although the consumption of gas per head of the population has not reached by a long way the figures which hold good for England, France, and the Eastern States of North America. The largest consumption of gas takes place in the Rhine country and the large towns of north Germany. By fractional distillation and purification of the raw products, the following are the principal substances obtained:

- (a) Light tar-oils containing benzol, toluol, and xylol,
- (b) Phenol,
- (c) Naphthaline,
- (d) Anthracene,
- (e) Creosote oils,
- (f) Pyridine.

The first four on the list are the raw materials of the manufacture of artificial colouring-matters and chemical preparations, the creosote oils are used for the pickling of railway sleepers, and pyridine finds its application in the so-called denaturation of alcohol.

(4) The manufacture of coke with saving of the by-products. This recently established and rapidly developing industry is similar in principle to the manufacture of gas, but turns out coke for blast furnaces as a main product; the gas obtained is used as fuel for the ovens, and the vapours thrown off by the coal are condensed as in gas-making. The tar thus obtained is further worked up like gas-tar, and yields the same products. The consumption of tar-distillates is so large in Germany that considerable quantities are still being introduced from England, France, and the United States.

(5) The refining of crude petroleum, which may be looked upon as a product of dry distillation carried on in the interior of the earth. There are three petroleum districts in the German Empire, but none of them bear comparison with either the Caucasian or American districts. They are therefore quite unable to cover the consumption in Germany. In 1885, 41,000 barrels of crude oil were obtained from the German wells. A number of works is engaged in the purification of this material, as well as of crude oil imported from abroad.

LINSEED OIL VARNISH.

EXPERTS will usually claim to be able to distinguish linseed oil from linseed oil varnish at sight. The task becomes more difficult, however, when mixtures of these substances have to be dealt with. To distinguish a poor oil from one containing 25% of varnish, the following plan was recommended a short time ago by Finkener:—A 20% solution of ammonia is prepared. Another test solution is made containing 100 grms. of lead acetate and 32 grms. of glycerol in 120 c.c. of water. The method of operation is performed thus:—1 c.c. of the ammonia solution is mixed with 5 c.c. of the lead solution, 12 c.c. of the suspected oil is added, and the whole is vigorously shaken together and then heated for three minutes at 100° C. On standing, if the sample be pure linseed oil, it will form two layers, the lower one clear as water, while, if the sample contain varnish, it will set to a soft viscous mass. Bleached linseed oil varnish may sometimes be mistaken for linseed oil in colour behaviour, but it is really a pale yellow, and in its reactions with the above agents it behaves just like the ordinary linseed oil varnish. With the usual solvents and saponifying agents it is a matter of some

difficulty to differentiate the one from the other. It is sometimes useful to know the state of oxidation of a linseed oil varnish, and for this object the following test which has recently been proposed by W. Fahriom, will be found sufficient. It is based upon the fact first noticed by Fahriom, that the unsaturated fatty acids on oxidation yield compounds which are insoluble in light petroleum, and may in this manner be separated from the saturated fatty acids or their oxy-products. The examination is carried out thus: About 3 to 5 grams of the varnish is weighed out and saponified by means of 15 to 25 c.c. of 8% alcoholic potash. After the spirit has been completely expelled, the soap is dissolved in 50 to 70 c.c. of hot water, and then transferred to a half-litre separating funnel. After decomposing the soap by means of hydrochloric acid and subsequently cooling, the whole is shaken with 100 c.c. of light petroleum and allowed to remain for about an hour. The aqueous fluid is now completely drawn off, and if any oxy-acids are present, they will be found adhering to the sides of the funnel. The clear petroleum layer is next drawn off, and after washing two or three times with light petroleum, the oxy-acids are dissolved in a little hot alcohol and transferred to a tared dish. After expelling the alcohol the residue is finally dried for an hour at 100-105° C. The amount of oxy-acids found by Fahriom in various samples of linseed oil varnish varied from 0.6 to 31.6%.

THE SOAPSTONE INDUSTRY OF CHINA.

THE British Consul at Wenchow, in his last report, gives some interesting details respecting the manufacture of steatite or soapstone ornaments in China. The mines are distant 42 miles from Wenchow, and are reached by a boat journey of 35 miles up the river, followed by a land journey of seven miles over rough ground. The hills containing steatite are owned by 20 to 30 families, who in some cases work the mines themselves, in others engage miners to do it on their account. The galleries are driven into the sides of the hills, and are often nearly a mile in length. The composition of the hills is soft, and the shafts require to be propped up by supports of timber; for the same reason the floors are full of mire and clay, so that the miners wear special clothing, made principally of reha fibre. They lead a hard life living in straw huts on the hillside. The stone when first extracted is soft, hardening on exposure to the air. It is brought out of the mine in shovels, and is sold at the pit mouth to the carvers at a uniform price of about ½d. per pound. This would be when the purchaser buys it in gross, without first selecting it in any way. When picked over the mineral varies very considerably in value—according to the size of the lump, its shape, and above all its colours. The colours are given as purple red, mottled red, black, dark blue, light blue, grey, white, eggshell white, “jade,” beeswax, and “frozen.” Of these “jade” (the white variety, not the green) and “frozen” are the most valuable. Indeed, so valuable is the latter that good specimens of it are said to fetch more than real jade itself. The industry finds employment at the present time for some 2,000 miners and carvers. A great impetus was given to it by the opening of Wenchow to foreign trade. Previous to that event the chief purchasers of soapstone were officials and literary men, and the article most often carved was a stamp or seal. When it was discovered that foreigners admired the stone, articles were produced to meet what was supposed to be their taste. Such were landscapes in low or high relief, flower vases, plates, card trays, fruit dishes, cups, teapots, and pagodas. If left to his own devices the native carver proceeds first to examine his stone, much as a cameo cutter would do, to discover how best he can take advantage of its shape and shades of colour. There is for this reason room for wide difference in artistic quality, apart altogether from the intrinsic value of the mineral, and carved pieces vary in price from a few cents to £3. and upwards. And among the more pure native articles produced are, besides the seals, writing materials, such as trays for pens, slabs for rubbing ink, and the like; flower vases, square, round, or hexagonal; boxes for sealing vermilion, incense boxes of all kinds, but chiefly having the character for “long life” in open work on the cover; small sandalwood burners, flower baskets and balls, candlesticks, chessmen (or as we should regard them, draughts), cups, bowls, and lamps; idols, as the Star of Longevity, the Eight Genii, Goddess of Mercy; lions, monkeys, and other animals. Less ambitious workmen content themselves with polishing the stone and cutting in relief certain common emblems, as the sun, moon, clouds, mist, the lute, chessboard, books, scrolls; or the characters for happiness, promotion, old age, and posterity. It is said to be a peculiarity of the retail business that these goods are to be purchased more cheaply from house-to-house pedlars than at the mines. The reason given is that the excessive weight of the material makes the pedlar glad to dispose of it at any price. But the facts may be quite otherwise, and the story an ingenious concoction in the interests of the pedlars.

Our Book Shelf.

THE SANITARY RELATIONS OF THE COAL TAR COLOURS. By T. Weyl. Translated by H. Leffmann, M.D., Ph.D. 148 pp. Appendix and index. London: Kegan Paul, Trench and Trubner. 1892.

We have in these columns some time back made mention of certain investigations made in regard to the possibility of flowers coloured artificially with aniline colours being poisonous. The present work, however, goes farther, and records a number of experiments made with various coal tar colours, such as are used for colouring foods and general edibles. The first part of the work, which is really a translation of an essay by Weyl, gives a short outline of the history and classification of these colours, their uses, and detection. Poisonous colours are next considered, and some particulars given showing the percentages of sickness among workers in the colour industry. A most interesting portion of the book is the review of the legal enactments concerning the use of colours in the preparation of food in Germany, England, France, Italy, and Austro-Hungary. We then come to the actual investigations of the author himself. Owing to the vast number of colours, a selection was necessary, and preference was given to those which had aroused suspicion by poisoning having resulted from their intentional or unintentional use. The experiments consisted in administering to dogs chiefly, carefully-weighted doses of the colours, by the mouth, by injection into the blood, and also by hypodermic injection. The colours used were selections from the nitroso and nitro colour groups and azo colours. It is not possible to deal here with the experiments in detail, but it is satisfactory to know that out of twenty-three of the azo colours which were experimented with, only two, namely, Metanil yellow and Orange II., produced symptoms which justify their being considered poisonous. The book is carefully prepared, and constitutes a valuable addition to our hygienic knowledge of these colours, being likely to prove especially useful to those connected with medico-legal investigations.

CHEMISTRY FOR ALL. By W. J. Harrison and R. J. Bailey. 150 pp. London: Blackie and Sons, Ltd., 1893.

This little book is specially written to meet the demand for a handy cram book for the preparation of students for what is now known in the syllabus of the Science and Art Department as a course of “Alternative Elementary Chemistry;” a course calculated to give students a smattering of chemistry, physics, and electricity, with the general result, we should think, that, in the long run, the student knew just enough to demonstrate how very dangerous a little knowledge can be. Some idea of the book can be gathered from the fact that it covers by a most cursory reference the phenomena of solution, crystallization, and physical action of liquids and gases. The composition of air, water, and their physical properties, chlorine, carbon, sulphur, acids, alkalies and salts, ammonia, manufacture of coal gas, clays, sand, glass, manufacture of iron, steel, and lead, and compounds of copper, sodium, &c.; also composition and preparation of acetic acid, the chemistry (and manufacture) of soap, glycerine, and sugar, starch, gluten, and alcohol, concluding with the inevitable examination paper. The best feature in the book is the illustrations, which are good and plentiful for such a small work. In itself it is a well-compiled handbook, and one of the best of its sort. It is the sort to which exception may be taken.

CATALOGUE OF PRESSES. 57 pp. J. and F. Howard. Bedford, 1893.

This catalogue contains a list of some of the presses made by Messrs. J. and F. Howard for baling straw, &c., and for general agricultural purposes. The particulars given are only approximate, and therefore the catalogue lacks much of the virtue appertaining to other engineering catalogues. Amongst the illustrations are presses for oil cakes, cider making, electrotyping, jute pressing, packing paper, compressing peat for use as litter, oil seed presses, and straw presses. These special presses are worked by hand, horse-power, or steam; and are manipulated upon the toggle joint or Boomer principle. There is also an assortment of capstand screw presses which are of very simple construction, and not likely to get out of order.

SOME APPLICATIONS OF ELECTRICITY TO CHEMISTRY. 19 pp. By James Swinburne. London, George Tucker.

This brochure consists of three “Tyndall” lectures, delivered by the author at the Royal Institution. The first lecture deals with the application of electricity to electro-plating, and the rapid deposition of copper for electrotyping work; also the production of chlorine and soda by electrolysis. The second lecture touches on the results of electrolyzing fused electrolytes, chief mention being made of sodium chloride, and the production of aluminium from cryolite, while reference is also made to tanning, and the assistance electricity is likely to render in

this direction. The third lecture treats of the electrolysis of gas, which, though an unfamiliar term, is well known in its application to the production of ozone, concerning which we may have more to say shortly.

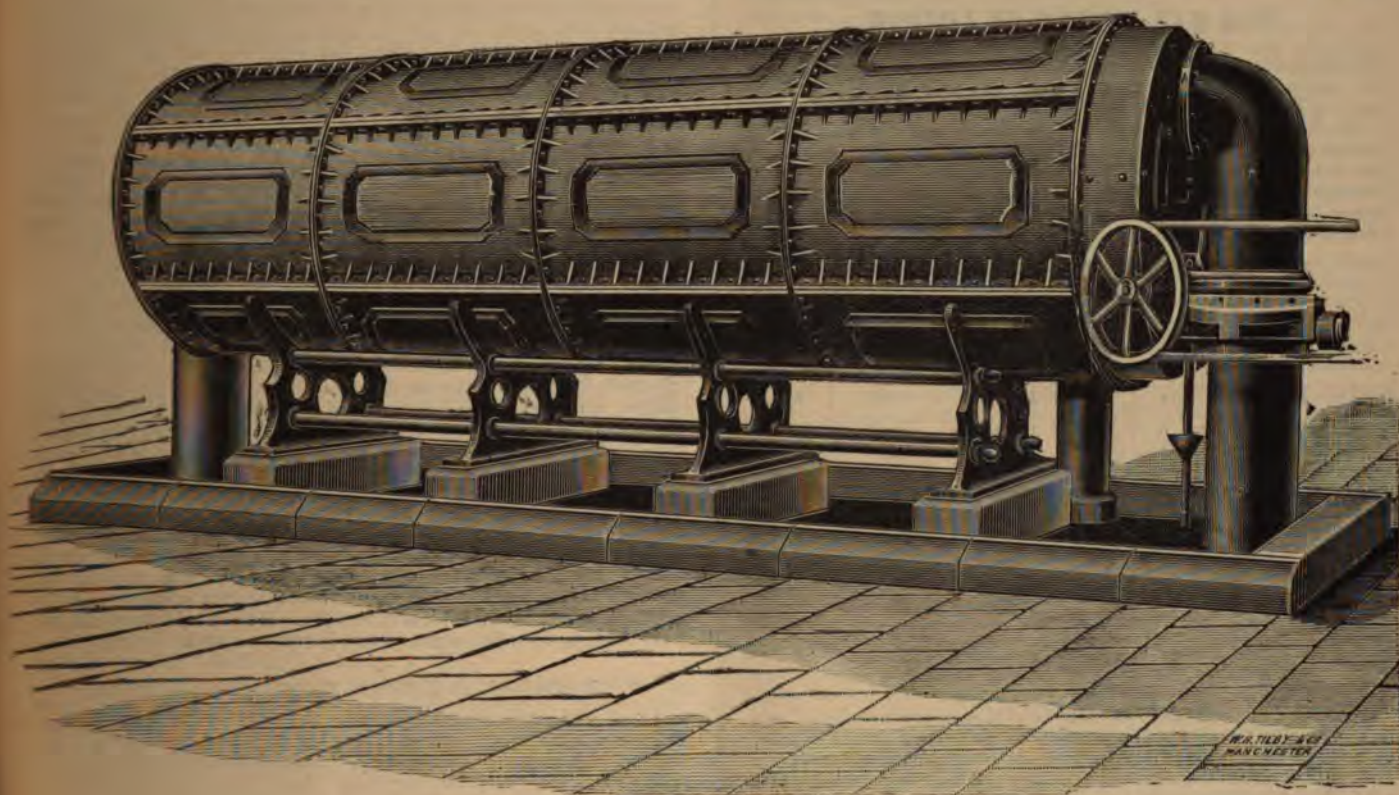
THE HYGIENIC TREATMENT OF DOMESTIC SEWAGE. By Peter Spence & Sons, Manchester, 1893.

This little pamphlet, which is most tastefully got up and well printed, is a supplement to the former publication of this firm on "Practical Sewage Purification." The present extension deals more particularly with the treatment of sewage from mansions, public institutions and small villages. The action of the precipitant—aluminoferric—is clearly set forth, and drawings and particulars of suitable settling and precipitating tanks are also added. There is doubtless much information which will be welcome to those who wish to deal with small quantities of sewage themselves, instead of making arrangements for turning the same into the sewers of some adjoining Local Authority to swell the volume of the "great untreated."

itself is a little less than half full of weak liquor, the upper space being occupied by the gas to be purified. Consequently, when the brushes are made to revolve they first pass through the liquor, and are then presented to the gas which finds a very tortuous passage through these brushes as it passes from chamber to chamber. In this way the gas is completely broken up and well scrubbed, effecting a most satisfactory elimination of the tar and ammonia compounds.

Another advantage is the way in which the passage of the liquor can be controlled, as by the aid of a special arrangement of pipes and the patent three-way valve attached to each chamber, any two of the same may be connected together if it is thought desirable, while the same contrivance enables the liquor in any one compartment to be drawn off when it has reached the desired strength, an advantage which will be appreciated by those gas companies who contract to sell a liquor of uniform strength. Further, the friction being small, but little driving power is required, and there is practically no back pressure, the resistance to the passage of the gas being slight.

Some idea of the efficiency of these washers can be gained from the knowledge that 35 gallons, it is stated, of ammoniacal liquor per ton of coal carbonised is being obtained, and gas managers, who only obtain



AN IMPROVED SCRUBBER WASHER.

THE better purification of gas is a subject which has claimed a great deal of attention of late, and gas engineers are consequently glad to learn of improvements in apparatus designed to accomplish purification. Naturally if the purification can be so arranged as to cause an increment of the most remunerative residuals, the preference is given to such a contrivance. The object of Messrs. W. C. Holmes and Co., of Huddersfield, in constructing their scrubber washer is to effect a more perfect purification of the gas prior to its passage to the lime or oxide boxes, so that while purifying the gas they might also produce a strong ammoniacal liquor.

These washers, the general appearance of which will be gathered from the accompanying illustration, show when attention is paid to their internal construction, that they have been made in accordance with the principles which underlie the successful scrubbing of large volumes of gases.

The interior of the washer is divided into a number of separate chambers, each forming a separate scrubbing compartment, as in each of these compartments a brush revolves, being keyed to a revolving shaft, which passes through the centre of the scrubber. The washer

low yields of ammonia, should not remain satisfied until they get all the ammoniacal liquor it is possible to obtain, as thereby a saving of lime and labour is effected in the subsequent stages of purification. In carbonising works especially these scrubbers should be found useful, as here it is the recovery of the residuals which is mainly aimed at; and, though the majority of such works are abroad, this should prove no hindrance, as the scrubbers can, when not sent in one piece, be put together by an ordinary workman, all the parts being marked to prevent mistakes.

THE SWINDLERS OF AMSTERDAM.—Mr. W. C. Robinson, writing from the British Consulate, Amsterdam, states that—"In spite of the warnings which I have repeatedly addressed to British traders and manufacturers on the subject of the multitude of swindling firms which infest this city, I regret to say that the evil continues apparently unabated, if I am to judge by the correspondence which continually reaches me from British firms, which either have been victimised, or which, with more prudence, write for information before executing the orders of these gentry. When I say that I have more than 120 names on my black list in Amsterdam alone, the extent and lucrative nature of this nefarious business will be evident."

Parliamentary Jottings.

THE ROYAL COMMISSION ON LABOUR.

IN the House of Commons last week Mr. Gladstone, in answer to Mr. Dalziel, said:—I am afraid there is no likelihood that the report of the Royal Commission on Labour will be presented during the present Session. I am informed that it is improbable that the report will be completed until towards the close of the present year.

Mr. Field asked what the Commission had been doing during the last few months (laughter), and whether the right hon. gentlemen would make inquiries as to how long it was since it last had a meeting.

Mr. Gladstone: If that question is to be raised it must be brought forward in the form of a discussion upon the proceedings of the Commission. It would not be courteous on my part, and it would be totally inconsistent with the practice, if it were to assume to myself the authority of superintending its proceedings. (Hear, hear.)

THE GAS SUPPLY OF LONDON.

THE quality of the gas supplied to the City of London for the week ending July 22nd, 1893, was not so good. According to the report of Mr. W. J. Dibdin, chemist and superintendent gas examiner to the London County Council, the tests made at the various testing stations showed seven deficiencies in illuminating power, three against the Gas Light and Coke Co., and two against both the South Metropolitan Gas Co. and the Commercial Gas Co. The following figures have been prepared from the report, and show the average composition of the gas calculated on the mean test:—

Company.	No. of districts tested.	Illuminating power (in stand. sperm candles).	Sulphur. Grains in 100 cb. ft.	Ammonia. Grains in 100 cb. ft.	Sulphuretted hydrogen.
		Mean average.	Mean average.	Mean average.	
Gas Light and Coke Co.	14	16.43	9.72	0.45	Nil.
South Metropolitan Gas Co.	6	16.61	10.55	0.61	Nil.
Commercial Gas Co.	2	16.20	6.80	0.45	Nil.

The standard gas supplied by these companies should have an illuminating power of 16 sperm candles, and contain not more than 22 grains of sulphur and 4 grains of ammonia per 100 cub. ft. of gas, on an average of three days, with a pressure of one inch between sunset and midnight, and six-tenths of an inch between midnight and sunset.

A BORAX MINE.

NEARLY all the boracic deposits heretofore discovered have been found in the form of incrustations on the surface of marshlands, of nodules buried beneath the surface, or of crystals embedded in the mud at the bottom of shallow lakes. In a few instances these deposits are found interstratified with layers of earth and rock, the entire formation being in a horizontal position, as seen at several points in Death Valley. But only in the Calico district, San Bernardino County, does one of these boracic deposits occur in the form of a regular vein, so uplifted that it requires to be exploited after the manner of a quartz or other ore-bearing lode.

This deposit, the property of the Pacific Coast Borax Company, is located on the south-easterly slope of the Calico Mountains, or rather on a northerly slope of the range. This lode, which outcrops at intervals for nearly 3 miles, has an east and west course and a southerly inclination. The slate walls are inclosed in sandstone, superimposed upon which is a brecciated rock, evidently of volcanic origin. The crude material here consists of that variety of the borate of lime known as Colemanite. According to the *Mining and Scientific Press*, it is of a vitreous adamantine lustre, and exceedingly rich in anhydrous boracic acid. The contents of the fissure are 6 feet thick, and at a depth of over 200 feet hold this proportion of nearly pure mineral.

The deposit has been opened by several shafts standing 100 feet apart, these being connected by drifts and levels. The mineral being easily broken down, but a small working force is required in the mine. All that is abnormal about this deposit of borax is easily accounted for. Originally it was, no doubt, deposited at the bottom of a lake, where later on great floods brought down a quantity of sediment which covered it up. In course of time this sediment having been converted into rock, the whole was then lifted up by some great convulsion of

nature and left standing at its present angle, this movement having been most likely of a seismic character. In the early history of the borax industry the works put up for the manufacture of this salt were of a very crude and primitive style. Owing to the great cost of lumber this article had to be economised to the utmost, the crystallizing vats, and other portions of the plant being left uncovered. But in the hot and desiccated atmosphere that for two-thirds of the year prevails in that region, this was no detriment so long as the workmen could be protected in part, at least, from the sun, which here strikes down with a killing heat the whole day long.

Reports of Companies.

THE GAS-LIGHT, AND COKE COMPANY.

ANTICIPATED REDUCTION OF PRICE.

THE report of the directors of this company for the half-year ended June 30, 1893, shows that, after providing for all fixed charges, there remains a balance of £358,878., out of which the directors recommend the payment of the statutory dividend on the company's ordinary stock at the rate of 12 per cent. per annum, carrying forward £21,083. to the credit of the current half-year's account. The quantity of gas sold during the past half-year, when compared with that of the corresponding period of 1892 (correction being made in the figures for Leap Year), shows a decrease of 2.8 per cent. It is, however, satisfactory to be able to account for this by reference to the weather records of the two periods. In the market for residuals coke has again realised low prices; but tar and liquor products have recently been slightly better, and the directors have reason to expect that the advances secured for these will be maintained. Until, however, the general trade of the country revives no great improvement can be looked for in this branch of the company's business. The directors say that they have to report an attempt, recently made by the London County Council, to substitute for the candle which has been in use for testing purposes for upwards of 20 years, one which possesses such greatly increased lighting power as to depreciate the recorded illuminating power of gas to the extent of about one candle. To this proposal the directors, in common with the directors of other metropolitan gas companies, will offer, in the interests of their customers, the strongest opposition, knowing as they do that gas made to pass such a test would have to be of so rich a quality as to be wholly unsuited to the consumers' existing burners and fittings, and equally unsuitable and even more wasteful for heating and cooking purposes, and that its manufacture would entail such an extra cost as would definitely postpone any reduction in the present price of gas. The coal required for carbonizing during the current 12 months has been contracted for at rates which show a satisfactory reduction in price as compared with the contracts of recent years; and if no untoward accident or interference with the existing order of things hinders it, the directors will be able to announce a reduction in the price of gas as from January 1st next.

THE EDISON AND SWAN ELECTRIC LIGHT CO.

The annual general meeting of this company was held on Friday, last week, at the City Terminus Hotel, Mr. J. S. Forbes presiding. In moving the adoption of the report, the chairman stated that their gross receipts last year were the largest ever earned by the company, while the net profits exhibited an increase of £11,832. over those of the previous year. The period of protection under which they had worked would expire next November, and in anticipation of that important fact the directors had been proceeding on a well-considered design for several years in order to enable them to meet the competition by which they would then doubtless be confronted. For the first time in their history, the deferred shareholders had this year to be taken into account in the appropriation of the balance of profit. Major S. Flood Page seconded the motion. In answer to a question the chairman said that arrangements had practically been made for taking over the remaining part of the business of the Swan Company. The motion was adopted.

THE UNITED ALKALI CO., LTD.

The directors of this company have decided to pay an interim dividend on the ordinary shares of 6s. per share and on the preference shares of 7s. per share, payable on the 30th August. The interim dividend last year was 5s. per ordinary share.

THE MONMOOR IRONWORKS.—These works, which, till of late, have been carried on by Messrs. E. T. Wright & Sons at Monmoor Green, have been taken over by the well-known Wolverhampton firm of Messrs. Bayliss, Jones, & Bayliss.

Correspondence.

We do not hold ourselves responsible for the opinions expressed by our correspondents.

ANSWERS TO CORRESPONDENTS.

- J. M. W.—It was sent.
 SONS—It will be returned as soon as done with.
 —Thanks for calling attention to the point. It was, however, quite correct as was.
 A. AND CO.—We are obliged for your favour. The back number has been at on.
 B.—The price is stated. There need, therefore, be no doubt about it.
 —Thanks for information.
 —Co.—We are waiting for pamphlet mentioned in your last. Kindly forward once.
 AND CO. (Rotterdam).—We beg to acknowledge your last communication to thank you for same, trusting to be similarly favoured in the future.
 D. AND CO.—Notification to hand for which we are obliged.
 —There are only a select few who make it; in fact, a very select few.

Trade Notes.

LE BLANC PROCESS.—The following advertisement appeared *Manchester Guardian* of Monday last:—

ISIS IN THE ALKALI TRADE.

LE BLANC PROCESS.
 ess and will shortly be published, a PAMPHLET on this manufacture, by all Manufacturer, showing clearly the disastrous effect of the American of combination when applied in this country. Those interested should study dication, as it suggests the proper course to be adopted by those dependent success of this process.

ope the author will give us an opportunity of criticising his ilet, to which we will endeavour to do justice, whatever his may be.

ANCE OF ADDRESS.—We hear that the address of the Electric unction Corporation has been changed, the present registered s of the Company being Queen-street Chambers, Queen-street, side, London, E.C.

BIG STEEL TUBE ORDER.—A big order for steel tubes for ring compressed air on a continental tramway is in progress at lobe Tube Works of Mr. J. Spencer, Wednesbury. The tubes from 9 up to 21 inches in diameter.

PARATION OF VERMILION.—The following is a patent method aring vermilion by the wet method:—Precipitated black sulphide ury is suspended in water, saturated with sulphuretted hydrogen hen it dissolves. The solution is then heated for several hours, vermilion is formed.

RATE OF SODIUM.—We learn from Messrs. Dobell and Co. st week the stock of sodium nitrate in the port of Liverpool was 20 tons, the smallest ever known in the history of the trade. ls per the *Mentana* were expected this week, however, by this o that the phenomenon will not be of long duration.

KIN v. SALT UNION.—Mr. Ridley, Q.C., the official referee, is decision on Tuesday last in this case, in which a claim for 20. was made against the Salt Union. The decision was in of the Salt Union upon all points, and with full costs for the ant company.

ACTION FOR WRONGFUL DISMISSAL.—At the Liverpool Assizes sday last, Herman Aldendorff, chemist and chemical engineer, t an action against Murgatroyd's Ammonia-Soda, and Salt ate, Limited, to recover damages for wrongful dismissal from his n of manager of the defendant company's works in Cheshire, but laintiff had given his evidence the parties arrived at a settlement.

PPAGE OF THE UNITED ALKALI CO.—The decision of the Alkali Co. to stop the caustic department last Saturday has much uneasiness in Widnes, as the stoppage will not only the caustic men, but a number of fitters and mechanics, about persons in all. It is intended to continue work at Runcorn as fuel can be had to operate the plant and machinery.

ACHING WITH SODIUM PEROXIDE.—In order to bleach ivory, s, bristles, &c., a patent has been obtained which makes a bleach-mpound by decomposing sodium peroxide with a salt of ium, calcium, barium, aluminium or zinc, the oxide of which is ated by the caustic soda produced in the reaction. Carbonic s is added to the solution to precipitate such oxides as are as hydrates, but not as carbonates.

SEWAGE SLUDGE AT SALFORD.—At the monthly meeting of the Council last Wednesday, a proposal was submitted to the Salford Corporation to carry the sludge from the treatment of the sewage out to sea by means of a steamship capable of carrying 600 tons of sludge. The proposal having been approved of, it will be necessary to make an application for sanction to borrow £17,000, in order to provide the steam vessel.

ESTIMATION OF CHLORIDES IN WATER.—A short communication on this subject was made by Mr. T. Fairley at the meeting of the Society of Public Analysts at Dublin. Attention was drawn to the fact that alkaline silicates interfered with the results obtained by titration by Mohr's method for the estimation of chlorine. The testimony of W. G. Young regarding the necessity of concentrating very dilute waters before attempting to estimate the chlorides by titration was also verified.

JAVA INDIGO.—The demand for Java Indigo is, according to the report of Messrs. Bunge and Co., of Rotterdam, on the increase. Stocks are not large, and the second cuttings are much below expectations, so that the position of this article is very strong. The Bengal crop will be small, and consequently will have an influence on prices; so that, apparently, it is advisable to purchase now rather than to delay till autumn, when the best parcels will be sold and the choice more limited.

SODA INDUSTRY IN GERMANY.—The German soda industry has largely increased in recent years. Whereas in the year 1877 only 42,000 tons of soda were produced and about 27,000 tons were imported, the production in 1883 amounted even then to 115,500 tons, of which 59,100 tons were obtained by Solvay-process. Since 1884 the German Empire can boast of an important export trade in soda. The excess of exports over the imports amounted in 1884 to 3,305 tons, in 1890, with a total production of 195,000, to 28,465 tons. The value of the total production varies with the price of soda. In 1883 it amounted in round numbers to 17 million marks. —*Kuhlou.*

THE SALFORD SEWAGE REPORT.—On Wednesday last, at the meeting of the Council of the Salford Corporation when the idea of carrying the sewage sludge out to sea was propounded, the report of J. Carter Bell, F.I.C., borough analyst for Salford, was also presented. The report covers a period of four years, and deals *in extenso* with the various processes which have been used at the Salford Sewage Works for treating the sewage of the borough. It further contains recommendations as to the selection of the process which in the opinion of the analyst should be adopted for future use in the Corporation's works.

AN ITEM FOR THE CURIOUS.—Open a book at random, and select a word within the first ten lines, and within the tenth word from the end of the line. Mark the word. Now double the number of the page and multiply the sum by five. Then add twenty. Then add the number of the line selected. Then add five. Multiply the sum by ten. Add the number of the word in the line. From this sum subtract 250, and the remainder will indicate in the *unit* column the number of the word; in the *ten* column the number of the line, and the remaining figures the number of the page. Try it!—Funny, isn't it?—Of course it is very simple. Possibly the explanation is also.

THE METROPOLIS AND ITS SEWAGE.—The Main Drainage Committee of the London County Council reports that: The total capital expenditure on main drainage works from their creation has been £7,466,222, and the annual expenditure for maintenance is £194,765. Taking the two outfalls at Barking and Crossness together, the sewage treated last year amounted to nearly 64 billion gallons. The amount of sludge obtained stands at no less than 1,785,700 tons. The whole of this quantity has been conveyed to sea by means of five huge vessels. The result has been that the river is generally admitted, by all persons competent to judge, to be in a better state than it has been for many years, especially in the lower reaches.

A PUMICE STONE MINE.—A mine of pumice stone exists on the Teneriffe Peak, of which the working was only started in 1888. The stone is found in that part of the peak called the "Canadas," at about 2,000 feet above sea-level, which has an area of some 6,000 hectares, out of the middle of which rises the highest part of the peak. The Russian Consul at St. Croix bought this property off the Spanish Government in consideration of an annual payment for the pumice stone working. The Russian consul has associated himself with a Belgian, and they, under the firm styled Aguilar and Valcke, commenced operations in 1888, but it was only last year that exportation was really started. At the Paris Exhibition, the Consul General states, this stone obtained a silver medal, and in view of the requirements of England, France and America, he believes it will develop a trade of great importance before many years. So far, the Lipari Islands have practically furnished the world's supply of this product, exporting about 100,000 tons per annum. The Teneriffe stone being recognized as of excellent quality, and its extraction being of a much more simple matter than in the Lipari Islands, it follows that the price is much less.

THE ELECTROLYTIC PRODUCTS OF SULPHURIC ACID.—In a communication on his researches on the production of hydrogen peroxide and of persulphuric acid when dilute sulphuric acids of different strengths is electrolysed, M. Kuriloff states that he employed for this purpose an apparatus which permitted the separate collection of the products formed at the two electrodes. The hydrogen peroxide was determined by titration with potassium permanganate, and the persulphuric acid by adding a known quantity of ferrous salt to the solution and titrating back with potassium permanganate. The results of his experiments are: (1) the quantity of hydrogen peroxide formed is very small; (2) hydrogen peroxide and persulphuric acid may be simultaneously formed at both electrodes, but the peroxide is not always accompanied by persulphuric acid; (3) the formation of both products is intimately connected with the concentration. Persulphuric acid only appears when the solution contains over 1 per cent. of sulphuric acid; hydrogen peroxide when the concentration is over 1 per cent.; (4) mixtures containing 3, 47, and 73 per cent. of acid respectively behave differently from other mixtures with regard to the amount of peroxide formed when they are electrolysed. This is considered by the author to be due to the fact that the composition of these solutions approximates to that required by the hydrates containing $(H_2O)_{150}$, $(H_2O)_6$, and $(H_2O)_2$, to each molecule of H_2SO_4 , since, according to Mendeleeff, all these hydrates exist in solution.

A SMOKE PURIFYING SCHEME.—Reference is made by Mr. Alfred Spencer, in his report to the London County Council on the treatment of smoke, to the several suggestions which have been made for doing away with the fog nuisance. Apart from the familiar suggestions of having central smoke collecting towers, burning anthracite or using asbestos, one of the most interesting (as a curiosity, of course), is the proposal of Colonel Dulier, which is to mix steam with the smoke and then condense it. Mr. Spencer declares that the invention works well, and that there appears to be little difficulty about it, "provided cost is no object." The solution of the smoke question appears to be almost entirely a matter of cost. Colonel Dulier furnished an estimate of the cost of fitting up his appliance in a medium sized house, and the subsequent cost of maintenance and water supply, and he has estimated the cost at £40. for a house with ten chimneys, or £4. per chimney. He estimates the chimneys in London at 1,500,000, and the total capital necessary at £6,000,000. But probably the average cost of supplying the apparatus throughout London would be considerably in excess of that sum. At the last census there were 557,134 inhabited houses in London, and if each of these contains only six chimneys, the capital sum involved would amount, on the basis of £4. a chimney, to considerably over *twelve millions*. Smoke and sewage take a deal of money before they will consent to be "treated."

Market Reports.

TAR AND AMMONIA PRODUCTS.

The tar products market still continues in a frightfully depressed state, and the worst is that the state of affairs is not improving. Benzol is quite a drug, even at this period of the year, and it is now difficult to sell 90's even at 1s. 4d. Crude carbolic is the only coal tar product with any life in it, and the demand for this has not by any means come up to the expectations of the producers. Anthracene and pitch remain as already quoted.

The sulphate of ammonia market continues to strengthen, and the values for spot parcels are exceedingly firm. To-day's quotations are £13. 12s. 6d., at all ports, and no stocks of any moment throughout the whole country. There is now a strong "bear" movement on, endeavouring to disseminate the idea that the market is being bolstered up, in order to prevent foreign purchasers coming forward too rapidly. Makers of sulphate never had such a chance as they have to-day.

REPORT ON MANURE MATERIAL.

There continues to be a fair enquiry, but the volume of business reported is not large.

There is no change in the position of mineral phosphates. For 75/80% Florida the quotation remains 8¼d. per unit, for Peace River 7d., and for hot air-dried South Carolina River 6¾d. in cargoes, cost freight and insurance to good U.K. ports.

Business in River Plate bones has been done at £4. 10s. and there are still buyers at the price but no further cargoes offer meantime. Crushed Kurrachee bones offer at £4. 10s. ex quay Liverpool, autumn shipment, but do not find buyers at the price. £4. 12s. 6d. ex quay

Liverpool, London, or Glasgow required for Bombay bone meal, shipment up to the end of the year. £3. 10s. on 70% nett Hamburg terms, is probably nearest value of River Plate bone ash. Good charring bones are worth £4. 5s. per ton, ex quay Liverpool, and common grinders £4 to £4. 2s. 6d.

Nitrate of soda is somewhat firmer, and due cargoes are worth 8s. 10½d to 9s. per cwt. For May-June sailings 9s. would have to be paid, and 9s. 3d. to 9s. 4½d. for September-Novembers. Owing to scarcity of supplies the price in Liverpool is 9s. 9d. to 10s. per cwt.

In miscellaneous nitrogenous material we do not hear of any business.

MISCELLANEOUS CHEMICAL MARKET.

The position of the market in the alkali trade is generally firm, as a consequence of limited fuel supplies. The present tendency is decidedly in the direction of an advance in prices, as there must necessarily be a large curtailment in the output of the products if not an actual stoppage. In the meantime the spot prices are unchanged, viz.:—Bleaching powder, £8. per ton, f.o.r. Caustic soda, f.o.b. Tyne, 77%, £11.; f.o.b. Liverpool, 74%, £10. 10s.; 70%, £9. 10s.; 60%, £8. 10s.; cream, 60%, £8. 5s., 10-ton lots and upwards. Soda ash, 58%, 1½d. to 1¾d. at makers' works. Soda crystals, £2. 17s. 6d. per ton. Recovered sulphur is only in limited request, and price remains nominally at £4. 2s. 6d. per ton, makers' works. Chlorate of potash, 8d. per lb. For sulphate of copper the demand is somewhat slow, and the quotation is £15. 10s., f.o.b. For acetates of lime there is only little enquiry, and prices ruling as for some time past. Acetates of soda and lead are without alteration. Carbolic acid crystals steady at 6½d. to 6¾d. White powdered arsenic in good request and scarce, price being firm at £13. 10s. to £13. 15s., Garston. Potash, caustic and carbonate, sell moderately well, and prices are steady. Yellow prussiate of potash slow of sale at 9d. Ammonia salts still scarce, more especially muriate, principally due to the scarcity of water, price £22. 10s. to £23. Sulphocyanides continue extremely dull, and prices are, if anything, weaker.

THE METAL MARKETS.

LONDON, WEDNESDAY.—Pig iron inactive. Scotch warrants closed at 42s. 3½d. cash, Middlesbrough 35s. 8d. cash, and hematite 45s. 5½d. Copper, rather easier: Chili bars, G.O.B.'s and G.M.B.'s closed at £41. 17s. 6d. to £42. 5s. od. cash, and £42. 5s. to £42. 12s. three months. Tin quiet: Straits closed at £81. 15s. to £82. 5s. cash, and £81. 0s. to £81. 10s. three months. Australian nominal; English ingots, £87. to £87. 10s. Lead, steady: Spanish, £10. 2s. 6d. to £10. 5s. od. English, £10. 7s. 6d. to £10. 10s. Silesian spelter: Ordinary, £17. 10s. Nickel 1s. 8d. Antimony, £38. Quicksilver: First hands £6. 5s. second hands, £6. 4s. Copper shares: inactive. Cape, 1 to 1½. Copiapo, 1¾ to 1½. Libiola, 2½ to 3. Mason and Barry, 1½ to 1¾. Rio Tinto, 14½ to 14½; Tharsus, 4½ to 4½; Namaqua, ¾ to ¾.

WOLVERHAMPTON, WEDNESDAY.—Midland pig iron quotations were to-day entirely nominal. Owing to the strained fuel position at the furnaces, no new orders would be accepted and it was impossible to correctly gauge prices. For any iron available out of stock, however, rates fully 2s. per ton higher than before the strike commenced were demanded. Staffordshire pigs advanced to 37s. 6d., common 45s. part mines, and 52s. 6d. hydrates. Sheets, doubles, £7. to £7. 5s.; hoops, £6. 10s.; common bars, £5. 10s. Coal still rising.

GLASGOW, WEDNESDAY.—Market firm, with fair business. Scotch done at 42s. 3½d., and 42s. 4d. cash; closing with buyers at 42s. 3½d. cash, sellers ask 42s. 4½d. Cleveland done at 35s. 7½d. cash; closing with buyers at 35s. 8d. cash and 35s. 10d. one month, sellers 1d. dearer. Cumberland hematite closes with buyers at 45s. 4½d. cash, sellers ask 45s. 6d.. Middlesbrough hematite closes with buyers at 43s. 3d. cash, and 43s. 5d. one month, sellers ask 3d. more.

LIVERPOOL OIL AND COLOUR MARKET.

WEDNESDAY.

OILS.—The decline in palm oil has continued, and price to-day is £24. per ton transit for Lagos, the market being dull. There is a fairly good demand for olive, and prices are steady at £32. to £42. per ton according to quality. Linseed is rather quiet, with Liverpool makes in export casks 22s. 3d. to 22s. 6d. per cwt. Rape quotations are nominal. Cotton seed is quiet and Liverpool refined easier, prices

from 22s. to 23. 9d. per cwt. The position of castor oil is the same. Good seconds Calcutta are selling at 2½d. to 2¾d. moderate business doing. First pressure French 2½d. to 2¾d. according to quality. Tallow is steady and unchanged at the

There is a fairly good business doing in common at 3s. 9d. on spot, and also in the higher grades at 4s. 6d. to 8s. 6d. and 9s. to 12s. fine. Spirits of turpentine continue depressed 6d. per cwt. Petroleum: prices are maintained for both Russian and American.

OURS are better. Ochres: Oxfordshire, common, £10., 12., best, £15.; Derbyshire, common, 40s.; medium, 50s., 60s.; Welsh, best, 70s., seconds, 50s., and common, 18s.; Devonshire, 40s. to 45s.; French, J.C., 55s. to 60s.; M.C., 65s. 6d. Umber: Turkish quiet; Devonshire, 50s. to 55s. White lead, and oxide of zinc unchanged. Venetian red, £6. 10s. Cobalt: Prepared oxide, 9s. 9d.; black, 9s.; blue, 6s. No. 1, 3s. 6d.; No. 2, 2s. 6d. Oxide of iron: Common, medium, £10.; finest, £20. Zinc oxide, £23. to £25.

TYNE CHEMICAL REPORT.

TUESDAY.

nicals continue in fair demand. Soda crystals have advanced to s. per ton locally, and stocks on the Tyne are low. Bleach at £8. 5s. per ton. Caustic soda steady. Sulphur firm at per ton.

ching powder, softs, £8. 5s. per ton nett; hard, £8. 10s. 1; caustic soda, 76/77%, £11. per ton, 70%, £9. 10s. per recovered sulphur, 2 cwt. bags, £4. 5s. per ton; soda ash, £4. per ton, 52%, £4. 7s. 6d. per ton, 56%, £4. 15s. per alkali, 36%, £3. 15s. per ton; white alkali, 48%, £4. 15s. per %, £5. per ton, 52%, £5. 5s. per ton; hyposulphite of soda, in casks, £7. per ton, ditto, in 1 cwt. kegs, £7. 15s. per ton; of soda, 75° Tw., £2. 15s. per ton, 100° Tw., £3. 10s. per 0° Tw., £3. 17s. 6d. per ton; soda crystals, in casks, £2. 12s. n gross weight, in 2 cwt. bags, £2. 12s. per ton nett; chlorate of potash, 8¼d. per lb. less 6%; pearl hardening, r ton nett; pure white sulphate of alumina, £4. 2s. 6d. per ton; fixe, £7. 10s. per ton; chloride of barium, £7. 10s. per ton; ate of alumina, £28. 15s. per ton nett; aluminate of soda, 5s. per ton nett; in 5 ton lots, £28. 10s.; hydrate of barium, er ton nett.

h Durham Salt unaltered in price. Shipments continue good. s. Forward supplies are more promising, as the Northumber- and Durham pits are working well, and a good output is being bank. Prices are still unreliable, all depending on quantity mod of delivery. The top price reached so far for best steam mpt is 12s. per ton.

ULL PAINT, OIL, AND COLOUR REPORT.

TUESDAY.

S.—All business here seems to stagger under the influence of ated effects to be caused by the illegitimate attempts of force in al trade, this port being the principle for the Yorkshire coal. Quotations for oils are lower; linseed oil being very dull and in price, cotton oil being also about 5s. per ton lower. The for the week compared with the same last year are generally ed, being: linseed oil 1,338 cwts. against 1,135 cwts., and oil 3,821 cwts. against 2,544 cwts.; the import of tallow shows slight increase. The present quotations being: linseed oil, spot, l. per cwt., naked; ditto., boiled and refined, 21s. 6d. to 22s.; for delivery any time during this month, 21s. is accepted; aber-December offer at 18s. 10½d. Cotton oil refined closing at 20s. 6d.; August-October deliveries offer at 20s. 4½d; ber-April, 18s. 4½d.; new oil, crude, for November-April, is at 16s. 9d. Refined rape oil in casks unchanged. Fish oils: perm, £36. to £50.; cod oil dull and slow sale, coast £17. 10s. , Newfoundland, very little enquired for, £26.; herring oil os. per ton; sod oil, for carriers etc., £15. to £17. per ton in Resin, common, from £4. per ton. Crude resin oil, £7. per Petroleum jellies 26s. to 28s.

CES.—Linseed cakes, 95%, pure, £8. 12s. 6d.; good ordinary , £7. 7s. 6d. Cotton cakes: All finest Egyptian cotton cake, , 6d.; second quality, £5. 2s. 6d. Round feed and oil cakes, . Rape cakes from £4.

NTS.—The trade shows signs of a falling in demand, though these goods and chemicals the exports show an improvement ame time a year ago, being, for the former 1,136 packages agains

649 packages, and chemicals 4,239 packages against 3,290 packages. The present rates for oxide of zinc, white and red leads remain unchanged. Venetian red, dry, £6 to £10.; oxide of iron, dry, £9. to £18. per ton. Paints ready mixed in various sized tins, 28s. per cwt. Enamels from 4s. 9d. per dozen. Fine linseed oil putty, £6 per ton.

THE LIVERPOOL MINERAL MARKET.

The mineral market has well maintained the improvement reported last week. Manganese stocks continue to be drawn upon, and slow arrivals, hence prices remain firm. Borate, 7d. per lb.; sulphate, £21. 10s.; oxalate, 1s. 6d. per lb.; chloride, £15., carbonate, £12. 10s., steady. Magnesite (raw lump) better demand; raw ground, £6. 10s., and calcined £12. 10s. Bauxite (Irish Hill brand): The demand for export has been very brisk at full figures; lump 20s., seconds 16s., thirds 12s. French chalk: The demand is still im- proving, and prices are well maintained. Barytes: Carbonate is still scarce; nuts, 72s. 6d. to 85s.; finest white sulphate is in demand. "Angel White," No. 1, 70s.; No. 2, 60s. to 65s.; No. 3, 45s. Pumicestone quiet. Iron ore flat, Bilbao, Irish, and Cumberland slow. Santander and manganiferous are quiet. Emery- stone firm; No. 1 lump, £5. 10s. to £6.; smalls, £5. to £5. 10s. Fullers' earth: Best lump, 55s.; fine impalpable ground, £7.; "Emerald" ground, 80s. Scheelite, wolfram, tungstate of soda, and tungsten metal easier. Chrome ore: Shipments are slow, with increased demand. Antimony ore easier, at £11. 10s., and metal £43. to £45. Asbestos firm. Potters' lead ore, smalls, £10. 10s. to £11. Calamine strontia sulphate (celestine) quiet. Limespar steady, especially for English manufactured; old G.G.B. brand in demand at 50s. (ground). Felspar quiet. Fluorspar: Best quality scarce. Ferro- manganese slow. Plumbago: Spanish, £5.; best Ceylon lump at last quotations; Italian and Bohemian, £4. to £12. per ton; "Founders," £5. to £6.; Blackwell's "Mineraline," £10. French sand, 20s. to 22s. 6d. Ground mica, £45. to £50. China clay steady, common, 18s. 6d.; good medium, 22s. 6d. to 25s.; best, 30s. to 35s. (at Runcorn). Bog ore (oxide of iron): finest quality 25s. to 30s.

WEST OF SCOTLAND CHEMICALS.

GLASGOW, TUESDAY.

Owing to scarcity and the firmness of the look ahead, the market for sulphate of ammonia has made a further upward bound, and towards the close of the week as high as £13. 12s. 6d., under special circumstances, was put on the record for prompt, while forward business rose correspondingly to from £12. 7s. 6d. to £12. 10s. or more. Indications since the opening of a new week still point to a settled firmness, and dealers are of opinion that prices have to go higher still.

Since the makers' refixing of burning oil at a halfpenny drop from last season's prices, the mineral oil companies have looked forward freely and indeed very largely, and there is the promise, at least, of quite an extensive turnover, if the margin of profit be almost critically slender. Solid paraffins are still quiet of demand, but there is a fairly steady business, and the prices now for some time ruling are maintained. This applies also to lubricating and gas oils which are quiet, but without any fall.

Alkalies and other general chemicals show a stiffening tendency, due to the uncertainty of the fuel supply; and some makers are already off the market pending a solution. Meanwhile prices are nominally unchanged.

Chief prices current are:—Soda crystals £2. 15s. nett, Tyne; soda ash £5. 5s. nett, Tyne; refined alkali £6. 10s. nett, Tyne; alum in lump, £5. 10s. nett, Glasgow; caustic soda, white, 74° £10. 10s., 70/72° £9., 60/62° £8., and cream 60/62° £7. 15s., all nett Liverpool; bleaching powder £8. 5s. nett Tyne; saltcake 24s.; borax, English refined, £30., and boracic acid, £37. 10s. nett, Glasgow; bicarbonate of soda, 5-cwt. casks, £6. 10s., and 1 cwt. casks £6. 15s. less 2½%, Liverpool; bichromate of potash, 4½d. nett, for Scotch and English deliveries (for export, 4¼d. nett f.o.b. Glasgow); bichromate of soda, 3¼d. nett, for Scotch and English deliveries (for export, 3½d. nett, f.o.b. Glasgow); chlorate of potash 8¼d. less 5% Liverpool; nitrate of soda, 10s.; sulphate of ammonia, £13. 10s. to £13. 12s. 6d. f.o.b. Leith; salammniac, first and second white, £37. and £35. less 2½% any port; sulphate of copper, £15. 15s. less 5% Liverpool; paraffin scale, hard and soft, 1¾d. per lb.; paraffin wax 120° semi-refined 2¾d.; paraffin spirit (naphtha) 3¼d. a gallon; paraffin oil, burning, standard No. 1 grade, 5d. per gallon at works, for Scotch buyers (English sales about ½d. to 1d. lower); ditto (lubricating) 865° £3. 10s. to £3. 15s., 885° £4. to £5. 10s., and 890/895° £4. 15s. to £6. 5s. Week's imports of raw sugar at Greenock were 20,511 bags.

New Companies.

London XL Drug Company, Ltd.—CAPITAL £1,000., in shares of £1. each. The object of this company is to carry on the business of chemists, oil and colourmen, and drysalters.

Newfoundland Mineral Syndicate, Ltd.—CAPITAL £5,000., in shares of £1. each. The object of this company is to acquire a licence to search for minerals in Newfoundland, and to prospect for asbestos and metals of any description.

British Anti-Fouling Composition Paint Company, Ltd.—CAPITAL £26,000., in 5,000 shares of £5. each, and 1,000 of £1 each. This company has been formed to carry on the business of manufacturers of anti-fouling and other compositions for application to ships, etc. The subscribers to the memorandum of Association are:—A. E. Way, 77, Cornhill, London, E.C., insurance agent; A. Simonis, 16, Fish-street, Hill, London, E.C., merchant; J. A. Sulton, Tulse Hill, London, S.E., gent.; G. A. Denny, 7, Connaught Place, London, W., gent.; W. Pears, 5 and 6, Leadenhall Buildings, London, E.C., underwriter; A. Burckhardt, 28, Lombard-street, London, E.C., merchant; J. F. Clark, 32, Great St. Helens, London, E.C., clerk.

Electric Construction Company, Ltd.—CAPITAL £400,000., in 200,000 shares of £2. each. This company has been formed to acquire the undertaking carried on formerly by the Electric Construction Corporation, Limited, and to trade as electrical engineers and general electricians. The subscribers to the memorandum of Association are:—D. Cooper, 6, De Vere Gardens, London, W., Bart.; D. Plunkett, Q.C., M.P., 12, Mandeville Place, London, W.; E. Garcke, Queen-street Chambers, London, E.C., director; H. C. Mance, K.B., etc., Bedford; I. Parker, Newbridge, Wolverhampton, M.I.C.E.; P. E. Beachcroft, 112, Portsdown-road, Maida Vale, London, W., manager; J. W. Barclay, 5, Clarendon Place, London, S.W., merchant.

The Patent List.

This list is compiled from Official sources in the Manchester Technical Laboratory, under the immediate supervision of George E. Davis and Alfred R. Davis, who report professionally upon the value of Chemical Patents.

APPLICATIONS FOR ENGLISH LETTERS PATENT.

Improved Machinery for Making Artificial Stone. C. Musker and A. Musker. 13,807. July 17.
Smoke Consuming Apparatus. A. W. Dolman. 13,823. July 17.
Making Waterproof Materials from Crude Wool Pulp. W. Knapp. 13,937. July 17.
Preparation of Bi-Calcic Phosphate Soluble in Ammonium Citrate. T. Chandelon. 13,842. July 17.
Manganese Steel. R. A. Hadfield. 13,847. July 17.
Manufacture of Acetic Acid and Recovery of Agent Employed Therein. T. H. Cobley. 13,916. July 18.
Apparatus for Obtaining Carbonic Acid. A. Muller. 13,927. July 18.
Method and Apparatus for Effecting the Absorption of Carbonic Acid. A. Muller. 13,928. July 18.

Burning Anthracite and Other Fuels. J. Westray. 13,056. July 19.
Preventing the Pollution of Rivers, etc., with Manufacturers' Waste Waters and Sewage, and for Cleaning and Purifying Ordinary River Waters for the Use of Manufacturers. W. Naylor. 13,967. July 19.
Purification or Furnace Gases. T. Hydes. 13,975. July 19.
Paper Pulp Stainers. H. J. Rogers. 14,001. July 19.
New Basic Colouring Matters. J. V. Johnson. 14,014. July 19.
Treatment of Spent Waters from the Manufacture of Sulphate of Ammonia. M. Schwab. 14,078. July 20.
Improvements in the Manufacture of Sugar and Apparatus Therefor. J. V. Johnson. 14,086. July 20.
Improvements in the Manufacture of Paris Blue and Berlin Green by Electrolysis. H. Goebel. 14,089. July 20.
Electrolysis of Iodides, Bromides, Nitrates, and other Salts. J. Hargreaves and T. Bird. 14,130. July 21.
Electrolysis of Chlorides, Iodides, Bromides, Nitrates, and other Salts, and Apparatus Therefor. J. Hargreaves and T. Bird. 14,131. July 21.
Oxydising and Chlorinating Anthracene. R. G. Bennett. 14,189. July 22.
Improvements in the Manufacture of Paper Pulp. J. P. Cornett. 14,191. July 22.
Softening and Purifying Water. A. Smith. 14,195. July 22.
Preventing Incrustation in Steam Boilers. V. Gane. 14,211. July 22.

GERMAN PATENTS period ending JULY 29, 1893.

Specialy abstracted by Dr. H. Zerener, civil engineer, the Patent Office, 20 Eichendorffstrasse, Berlin, N., for the Chemical Trade Journal. Dr. Zerener is willing to at once protest against the grant of such new Patents as may collide with the interests of subscribers.

12 C. 4,026. Preparing Sulpho-acid Alkali Salts from Phenylxylylethane. Chem. Fab. A. G., Hamburg.
12 K. 9,402. Apparatus for Producing Ozone by Electrical Discharges. D. Korda, Paris.
22 F. 5,347. Preparing an Amido-alizarine Colouring Matter by Action of Ammonia on Polyoxy-anthracinone Derivatives. F. Bayer & Co., Elberfeld.
22 F. 6,388. Preparing Nitrited Gases from Benzylidene Compounds of Primary Aromatic Mon-amines. F. Bayer and Co., Elberfeld.
22 F. 6,487. Preparation of $\beta_1 \beta_3$ Naphthylendiamine-mono-Sulpho-acid. F. Bayer and Co., Elberfeld.
22 G. 7,995. Preparation of μ -diamidodibenzamidazol. Dr. A. Gallinetti, Berlin, N.W.
26 M. 9,279. Retort for Producing Oil Gas. R. Meyer, Breslau.
26 B. 14,689. Thickening Drying Oils. W. N. Bakeman, junior, Gräfsch, Westchester.
12 F. 6,346. Preparation of p -amidoethoxymethyldiphenylamine. Meister Lucius Brüning, Höchst, a/M.
22 S. 7,097. Preparation of Anthracenesulpho-acid from Anthracene. Soc. Ann. Matières Colorantes et Prod. Chem. St. Denis, Paris.

Gazette Notices.

PARTNERSHIPS DISSOLVED.

C. M. STORER (acting by E. Cooper, George-street, Mansion House, E.C., chartered accountant, the duly appointed committee of the estate of C. M. Storer) and T. E. COLES, general merchants, colour and varnish makers, oil refiners, Vulcan wharf and Rutland wharf, Upper Thames-street, Blackfriars, E.C., under the style of Storer Bros. and Coles.
C. TAYLOR and R. L. FRICKER, barytes manufacturers, Minsterley, under the style of Taylor and Fricker.
G. BARNES, W. H. IVES, J. L. RIGG and J. WRIGHT, ice manufacturers, Barton works, Blechynden-street, North Kensington, under the style of the Metropolitan Ice Company.

IMPORTS OF CHEMICAL PRODUCTS

AT

THE PRINCIPAL PORTS OF THE UNITED KINGDOM.

LONDON.					
Week ending July 22nd.					
Acetone—		Antimony—		Barytes—	
Holland, 8 pkgs. A. & M. Zimmermann		France, 4 t. B. & F. Wf. Co., Ltd.		Belgium, 23 cks. W. Harrison & Co.	
Alkali—		Australia, 37 J. Livingstone		" 23 S. Ward & Co.	
France, 170 c. Arnati & Harrison		N. Zealand, 40 Sanderson, Murray & Co.		" 10 J. L. Lyon & Co.	
Alum—		" 9 James & Shakespeare		" 45 Burrell & Co.	
Belgium, 27 pkgs. Beresford & Co.		Portugal, 35 J. Barber & Co.		Germany, 41 H. Lambert	
Holland, 155 Ohlenschlager Bros.		Arsenic—		" 20 Phillipps & Graves	
Alumina Sulphate—		Germany, 10 pkgs. L. & I. D. Jt. Co.		" 22 W. Harrison & Co.	
Germany, 102 pkgs. Tough & Henderson		Asbestos—		" 34 L. & I. D. Jt. Co.	
		Belgium, £26 Leach & Co.		Holland, 22 O'Hara & Hoar	
		France, 12 Flageolet & Co.		" 22 S. H. Willoughby	
		Holland, 22 Phillipps & Graves		" 110 Magee, Taylor & Co.	
		Barium Chloride—		" 23 W. Pope & Co.	
		Germany, 24 pkgs. Petri Bros.		Caoutchouc—	
				Madagascar, 28 c. L. & I. D. Jt. Co.	
				France, 1 Flageolet & Co.	
				" 30 T. H. Lee	
				Canada, 100 Vokins & Co., Ltd.	
				Zanzibar, 41 L. & I. D. Jt. Co.	
				E. Indies, 71 Huttenbach & Co.	
				Germany, 50 Wallace Bros.	
				France, 19 H. Johnson & Sons	
				Germany, 52 Prop. Bull Wf.	
				" 70 L. & I. D. Jt. Co.	
				E. Indies, 59 "	
				Morocco, 84 "	
				Rangoon, 812 "	
				Castor Oil—	
				France, 24 brls. 30 pkgs. Beresford & Co.	
				" 20 J. T. Morton	
				" 25 Leach & Co.	
				" 58 cks. Fuerst Bros.	
				Italy, 10 cs. A. F. White & Co.	
				Caustic Potash—	
				France, 100 c. F. W. Berk & Co., Ltd.	

Caustic Soda—

Belgium, 29 c. Beresford & Co.
Holland, 100 " "

Chemicals (otherwise undescribed)

France, 4 pkgs. Hernu, Peron & Co.
Germany, 32 T. H. Lee
Holland, 102 A. & M. Zimmermann
Holland, 40 J. Sauer
France, 6 J. Owen
France, 68 Tingle, Jacobs & Co.

Cream of Tartar—

Spain, 15 pkgs. W. C. Bacon & Co.
France, 2 J. L. Lyon & Co.
" 6 B. & F. Wf. Co., Ltd.
" 5 W. C. Bacon & Co.
" 4 G. Ward & Sons
Holland, 12 Maconochie Bros.
Holland, 12 Middleton & Co.

Dextrine—

Germany, 100 pkgs. J. Barber & Co.
" 20 Skillbeck Bros.

Dyestuffs—

Anthracene
France, 55 cks. Burt, Boulton & Co.

Argols
Italy, 1,683 pkgs. B. Jacobs & Sons

" 118 Thames S. T. & L. Co., Ltd.

Cochineal
Carnaries, 29 pkgs. Swanston & Co.

Cutch
Rangoon, 300 pkgs. L. & I. D. Jt. Co.

" 500 Leach & Co.
" 350 H. A. Litchfield & Co.

" 250 Hoare, Wilson & Co.

Extracts
France, 40 pkgs. T. H. Lee

" 137 Williams, Torrey & Field

Germany, 4 T. H. Lee

Denmark, 36 M. D. Co.

France, 1 Hernu, Peron & Co.

Belgium, 51 T. H. Lee

Norway, 1 Johnsen & Jorgenson

Fustic
Jamaica, 3 t. Anderson, Anderson & Co.

" 30 Hawthorn, Sheddin & Co.

Gambier
E. Indies, 1,333 pkgs. Brinkmann & Co.

" 785 L. & I. D. Jt. Co.

" 649 Adamson, Gilfillan & Co.

Indigo
E. Indies, 18 cts. 1 cs. L. & I. D. Jt. Co.

" 8 Arbuthnot, Latham & Co.

" 22 Parry & Co.

Belgium, 1 W. P. Sampson

Logwood
Jamaica, 311 t. Anderson, Anderson & Co.

" 7 P. Macfadyen

Laguna, 6 A. A. Morlet & Co.

Madder
Holland, 4 pkgs. Tegner, Price & Co.

Myrabolams
E. Indies, 1,083 pkgs. A. Hagan

Sumac
Italy, 500 pkgs. J. Kitchin, Ltd.

" 50 Galbraith, Pembroke & Co.

" 150 Sollas & Sons

Tanner's Bark
Adelaide, 84 t. Baxter & Hoare

" 40 Beresford & Co.

Belgium, 56 Leach & Co.

Natal, 79 A. & W. Nesbitt

" 5 Dyster, Nalder & Co.

Turmeric
Cochin, 161 pkgs. Butler's Wf., Ltd.

E. Indies, 250 Hoare, Wilson & Co.

" 25 Eastwood & Holt

France, 112 Prop. Sun Wf.

Cochin, 92 Elkan & Co.

E. Indies, 213 Anderson, Weber & Smith

Valonia

A. Turkey, 10 t. A. & W. Nesbitt

" 100 Boutcher, Mortimore & Co.

Dyestuffs (otherwise undescribed)
Holland, 5 pkgs. Phillips & Graves

Farina—
Germany, 50 pkgs. H. Lambert

Holland, 140 R. G. Hall & Co.

France, 20 T. H. Lee

" 2 Hernu, Peron & Co.

French Chalk—
Italy, 4173 Magee, Taylor & Co.

Glucose—
U. States, 25 pkgs. 150 c. L. & I. D. Jt. Co.

" 3,150 3,910 Union Lightg. Co., Ltd.

" 200 200 Devitt & Hett

" 1,063 3,064 B. & N. Whvs. Co., Ltd.

" 500 500 P. W. Hore & Co.

" 50 275 Pillow, Jones & Co.

" 200 200 Page, Son & East

" 50 300 W. Isted

" 500 500 W. Balchin

" 500 500 W. Balchin

" 1,500 1,500 Beresford & Co.

" 100 100 L. Sutro & Co.

" 40 220 Soundy Bros.

" 34 90 Barrow, Lane & Co.

" 50 280 H. W. Peabody & Co.

France, 2 9 L. Norman & Co.

Belgium, 415 820 R. G. Hall & Co.

" 50 20 O. Pickford

Lead Acetate—
Holland, 12 pkgs. F. Boehm

Manganese Borate—
Germany, 20 pkgs. Petri Bros.

Manganese Sulphate—
Germany, 3 pkgs. Petri Bros.

Manure—
Belgium, 2 t. Leach & Co.

Methyl Alcohol—
Germany, 9 dms. Stein Bros.

Belgium, 13 "

Ochre—
France, 42 cks. W. Harrison & Co.

Holland, 18 pkgs. Phillips & Graves

Paraffin Wax
U. States, 108 brls. J. H. Usmar & Co.

" 150 Williams, Torrey & Co.

" 100 Worthington & Boler

Phosphate Rock—
W. Indies, 432 t. Lawes Manure Co.

France, 325 A. Hunter & Co.

" 187 Anglo-Contl. Guano Wks.

Plumbago—
Holland, 1 cs. G. Rahn & Co.

Germany, 96 cks. B. Gallaway

Ceylon, 60 brls. J. Thredder, Son & Co.

Cochin, 30 Marshall & French

Potash—
France, 100 c. Petri Bros.

Potash Salts—
Germany, 20 pkgs. J. Barber & Co.

Potassium Bicarbonate—
Holland, 20 pkgs. A. & M. Zimmermann

Potassium Bromide—
U. States, 33 pkgs. Pickford & Co.

Potassium Carbonate—
France, 98 c. J. A. Reid

Germany, 90 Chiswick Soap Co.

Potassium Oxalate—
Belgium, 20 brls. F. Boehm

Potassium Sulphate—

Germany, 750 pkgs. Co-op. L. Assn., Ltd.

Pumice Stone—
Italy, 9 t. Stobbs, Wilson & Co.

" 5 T. H. Lee

" 24 cs. Magee, Taylor & Co.

" 12 B. Gallaway

Saltpetre—
Germany, 3 cks. Capt. Krutzfeldt

" 5 J. A. Reid

" 50 P. Hecker & Co.

" 41 J. Hall & Son

E. Indies, 317 bgs. L. & I. D. Jt. Co.

Sodium Acetate—
France, 24 pkgs. H. Lorenz

Sodium Bromide—
Germany, 29 pkgs. A. & M. Zimmermann

Sodium Hyposulphite—
Holland, 24 pkgs. Beresford & Co.

Stearine—
France, 142 bgs. Beresford & Co.

U. States, 125 H. Hill & Sons

Belgium, 491 "

Sulphur—
Italy, 10 t. W. C. Bacon & Co.

" 200 Brandram Bros. & Co.

" 71 G. Boor & Co.

" 10 J. Kitchen, Ltd.

Tallow and Stearine—
Belgium, 2 cks. Brimmerstaedt & Co.

Turpentine—
Savannah, 2,576 bls. 3326 brls. Nickoll & Knight

Ultramarine—
Belgium, 1 cs. 1 brl. Leach & Co.

" 7 pkgs. W. Harrison & Co.

Holland, 23 Hernu, Peron & Co.

" 5 brls. C. J. Capes & Co.

" 4 cs. Haefner, Hilpert & Co.

Germany, 2 cks. Weare, Clifford & Co.

Belgium, 1 brl. "

Varnish—
U. States, 12 pkgs. Taylor Bros.

" 2 Randall Bros.

Verdigris—
France, 2 pkgs. B. & F. Wf. Co. Ltd.

White Lead—
France, 10 cks. J. Watt & Sons

Holland, 120 Burrell & Co.

" 30 T. & W. Farmiloe

" 15 J. Matton

Belgium, 4 brls. J. L. Lyon & Co.

Germany, 25 cks. N. J. Fenner & Co.

" 21 M. Ashby, Ltd.

" 10 Petri Bros.

" 43 Randall Bros.

Holland, 40 Phillips & Graves

" 40 A. & M. Zimmermann

France, 20 Burrell & Co.

Zinc Oxide—
Germany, 14 cks. Beresford & Co.

U. States, 100 brls. M. Ashby, Ltd.

Holland, 50 cks. Burrell & Co.

Germany, 25 Colthurst & Harding

LIVERPOOL.

Week ending July 20th.

Acetic Acid—
Rotterdam, 10 balns.

Alumina Sulphate—
Rotterdam, 7 cks.

Ammonium Chloride—
Hamburg, 1 ck.

Aniline Salts—
Rotterdam, 4 cks.

Asbestos—
Montreal, 100 bgs. 18 bls.

Barytes—
Antwerp, 6 cks.

Bleaching Powder—

Montreal, 1 ck. Andrew Bell & Co.

Boracite—
Panderma, 200 t.

Castor Oil—
Calcutta, 250 cs. Petrocochino Bros.

Genoa, 30 cs.

Colours—
In transit, 75 cks. 20 cs.

Hamburg, 7

Antwerp, 1

Rotterdam, 16 cs.

Ghent, 9 brls. J. T. Fletcher & Co.

Cream of Tartar—
Barcelona, 5 cks. 3 pps.

Rotterdam, 10 cks.

Tarragona, 5 pps. Sachse & Klemm

Dried Blood—
B. Ayres, 1,047 bgs.

Dyestuffs—
Annatto
Bordeaux, 15 cks.

Argols
Oporto, 31 cks. German Bk. of London

Cutch
New York, 151 bls.

Rangoon, 2,015 bxs.

Extracts
Fiume, 525 brls. De Clermont & Donner

Bordeaux, 600 cks. L. J. Levinstein & Son

Fustic
Savannah, 1,246 ps. G. H. Muller & Co.

Carthage, 4,100 Widow, Duranty & Son

" 1,174 Edward Brs.

" 2,849 Leech, Harrison & Co.

New York, 2,754 Bourne, Graham & Fell

" 443

Madder
Rotterdam, 1 ck.

Orchella
Lisbon, 8 bgs. Edward Brs.

Sumac
Alexandria, 45 bls.

Palermo, 100 bgs.

Valonia
Patras, 300 bgs. Barff & Co. Ltd.

Malta, 23 cks. T. B. Hall & Co.

" 127 Worthington & Co.

Farina—
New York, 1,779 sks.

Fiume, 50 bgs. 100 brls. C. J. Vandeer Veen

" 50

Glucose—
Hamburg, 288 cks.

New York, 5 brls. M. Woodward & Sons

" 1,053

Guano—
B. Ayres, 20 bgs. Williamson, Milligan & Co.

Lead Oxide—
Rotterdam, 1 ck.

Manganese—
Bordeaux, 635 t.

Ochre—
Bordeaux, 13 cks.

Paint—
Montreal, 5 crts. H. W. Hickvolli & Co.

Paraffin Scale—
Rangoon, 825 bxs.

Paraffin Wax—
New York, 450 brls. G. B. Taylor

Potash—
Montreal, 35 brls.

" 10 brls. Makin & Bancroft

Pyrites—
Huelva, 2,680 t. Matheson & Co.

Quicksilver— Gijon, 100 fls. A. Ruffer & Son	Rosin— Wilmington, 2,450 brls. Bayonne, 1,605 M. M. T. Nickels & Co. " 1,818 cks. R. J. Francis & Co. New York, 500 brls. Savannah, 5,850 brls.	Saltpetre— Hamburg, 82 brls.	Soap— New York, 3 cs. Burroughs, Wellcome Philadelphia, 32 crts.	Soapstone— Bordeaux, 300 bgs. G. G. Blackwell	Soda Salts— Rouen, 8 cks. R. J. Francis & Co.	Stearine— Antwerp, 3 bgs.	Tallow— B. Ayres, 50 cks. W. H. Fletcher & Co. " 596½ pps. Boston, 116 tcs. 244 hlds. Philadelphia, 31 65 New York, 100 Co-op. W. Sale Society, Ltd.	Tar— Wilmington, 1,320 brls.	Tartar— Bordeaux, 11 cks.	Tartaric Acid— Rotterdam, 9 cks.	Tinical— Calcutta, 339 bgs.	Turpentine— Savannah, 1,750 brls.	Ultramarine— Hamburg, 12 cks. Rotterdam, 4 21 cs.	Waste Salt— Hamburg, 301 t.	White Lead— Rotterdam, 106 cks. Ghent, 17	Zinc Oxide— Antwerp, 75 brls. J. T. Fletcher & Co.
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HULL.

Week ending July 22nd.

Ammonia— Hamburg, 1 ck. C. M. Lofthouse & Co.	Asbestos— Reval, 345 bgs. Flushing, 4 bls. Brash & Rothenstein	Barytes— Antwerp, 98 cks. 100 bgs. Bailey & Leatham	Chemicals (otherwise undescribed) Stettin, 30 cks. Wilson, Sons, & Co., Ltd. Bremen, 7 cs. Veltmann & Co. Antwerp, 74 pks. Wilson, Sons, & Co., Ltd. Dunkirk, 37 "	Colours— Hamburg, 5 cks. Rotterdam, 8 11 cs. Hutchinson & Son Flushing, 13 pks. G. Lawson & Sons Rotterdam, 32 pks. Ghent, 24 cks. Amsterdam, 3 W. & C. L. Ringrose Hamburg, 5 14 cs. Wilson, Sons, & Co., Ltd. Rotterdam, 1 71 pks. W. & C. L. Ringrose " 11 G. Lawson & Sons
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Flushing, 15 2 cs. Hutchinson & Son	" 1 Brash & Rothenstein	Antwerp, 39 pks. Wilson, Sons, & Co., Ltd.	" 12 5 cs. Hutchinson & Son	Riga, 1 ck. Wilson, Sons, & Co., Ltd.	Cream of Tartar— Rotterdam, 20 kgs. W. & C. L. Ringrose	Dyestuffs— Alizarine Rotterdam, 27 cks. " 59 pks. W. & C. L. Ringrose " 5 brls. G. Lawson & Sons Argois Bordeaux, 18 bgs. Rawson & Robinson Diyl Diyl Hamburg, 426 bgs. Wilson, Sons, & Co., Ltd. Sumac Palermo, 1,100 bgs. Wilson, Sons, & Co., Ltd. " 850	Farina— Haringen, 1,200 bgs. " 130 Wilson, Sons, & Co., Ltd.	Glucose— New York, 142 brls. Wilson, Sons, & Co., Ltd. Stettin, 470 350 bgs.	Limestone— Antwerp, 2 pks. Wilson, Sons, & Co., Ltd.	Mica— Christiania, 2 cs. Wilson, Sons, & Co., Ltd.	Ochre— Antwerp, 10 cks. Bailey & Leatham Rouen, 97	Paint— Stockholm, 16 pks.	Pitch— Archangel, 500 cks. F. B. Grotian & Co.	Potash— Antwerp, 18 cks. W. & C. L. Ringrose Rotterdam, 10 cks. G. Lawson & Sons	Saltpetre— Hamburg, 200 cs. Wilson, Sons, & Co., Ltd. Antwerp, 135 bgs. "	Size— Rotterdam, 10 cs. G. Lawson & Sons.	Soap— Bari, 144 cs. Wilson, Sons, & Co., Ltd. " 167	Soda— Antwerp, 1 ck. Bailey & Leatham	Stearine— Rotterdam, 23 bgs. Hutchinson & Son Antwerp, 93 bgs. Wilson, Sons, & Co., Ltd.	Sulphur— Catania, 2,426 bgs. Wilson, Sons, & Co., Ltd. " 555 pks. 101 t.	Tallow— Drontheim, 1 ck. Wilson, Sons, & Co., Ltd. New York, 40 hlds. "	Tar— Drontheim, 88 cks. Wilson, Sons, & Co., Ltd. St. Petersburg, 5 brls. Stockholm, 10 Wilson, Sons, & Co., Ltd. Archangel, 1,897 F. B. Grotian & Co.
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Tartaric Acid— Rotterdam, 4 cks. G. Lawson & Sons	" 2 Woodhouse & Co.	Turpentine— Bordeaux, 10 brls. Rawson & Robinson Libau, 51 cks.	Ultramarine— Rotterdam, 28 cks. Hutchinson & Son	Varnish— New York, 10 brls. Wilson, Sons, & Co., Ltd.	White Lead— Rotterdam, 50 cks. Hutchinson & Son Antwerp, 73 Bailey & Leatham Rotterdam, 10 cs. W. & C. L. Ringrose " 29 Tudor & Sons " 26 A. Sanderson & Co.	Zinc Oxide— Rotterdam, 10 brls. Hutchinson & Sons " 13 cks. G. Lawson & Sons.
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GLASGOW.

Week ending July 27th.

Acetate of Lime— New York, 862 bgs.	Aluminium— New York, 3 cs.	Aniline Colours— Rotterdam, 3 cs. 2 cks. J. Rankine & Son	Barium Sulphate— Antwerp, 102 bgs.	Barytes— Rotterdam, 85 cks. J. Rankine & Son " 15 cks.	Castor Oil— Antwerp, 111 cks.	Cellulose— Hamburg, 102 bls.	Chemicals (otherwise undescribed) Rotterdam, 1 cs. J. Rankine & Son	Colours— Rotterdam, 5 cks. 10 brls. J. Rankine & Son Hamburg, 1 ck. Rotterdam, 45 pks.	Dyestuffs— Alizarine Rotterdam, 117 cks. 1 cs. J. Rankine & Son " 120 pks. Extracts Genoa, 109 cs. Antwerp, 9 8 cks. Indigo Rotterdam, 3 cs. J. Rankine & Son Sumac Leghorn, 273 bls. Palermo, 50 685 bgs.	Farina— Hamburg, 100 bgs.	Glucose— New York, 700 brls.	Hydrofluoric Acid— Hamburg, 1 ck.	Lead Acetate— Hamburg, 11 cks.	Paraffin Scale— Philadelphia, 100 brls.	Pumice Stone— Messina, 17 bgs.	Salt— New York, 55 tcs.	Soda Salts— Rouen, 9 cks.	Sodium Acetate— Rouen, 16 cks.	Tallow— Philadelphia, 60 tcs. New York, 50	Tartar Emetic— Hamburg, 2 cks.	Tartaric Acid— Palermo, 17 brls.
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Tin Salt— Amsterdam, 1 ck.	White Lead— Rotterdam, 94 cks. J. Rankine & Son	Zinc Ashes— Antwerp, 5 cks.	Zinc Oxide— New York, 50 brls.
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TYNE.

Week ending July 22nd.

Alum Earth— Hamburg, 18 cks. Tyne S. S. Co.	Aluminium— Antwerp, 1 cs. Tyne S. S. Co.	Antimony— New York, 5 bgs. Furness, Withy & Co.	Barytes— Antwerp, 63 cks. 20 bgs. Tyne S. S. Co.	Glucose— New York, 375 brls. Furness, Withy & Co.	Limestone— Antwerp, 1 crt. 1 cs. Tyne S. S. Co.	Phosphate— Rotterdam, 73 bgs. Tyne S. S. Co. Antwerp, 270 t. Langdale & Manure Co.	Pyrites Huelva, 7,425 t. Scott Bros.	Saltpetre— Hamburg, 3 cks. Tyne S. S. Co.	Soap— Copenhagen, 1 cs.	Stearine— Antwerp, 13 bgs. Tyne S. S. Co.	Tallow— New York, 80 hlds. Furness, Withy & Co.	White Lead— Antwerp, 28 brls. Tyne S. S. Co.	Zinc Oxide— Antwerp, 30 brls. Tyne S. S. Co.
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GOOLE.

Week ending July 19th.

Alkali— Hamburg, 20 cks.	Antimony— Boulogne, 3 cks.	Caoutchouc— Boulogne, 4 cks.	Dyestuffs (otherwise undescribed) Boulogne, 28 cks. 2 cs. 27 pks.	Dyestuffs— Alizarine Rotterdam, 143 pks. Extracts Rouen, 70 cks.	Farina— Hamburg, 800 bgs. Delfsyzhl, 958	Lead Acetate— Hamburg, 19 cks.	Potash— Hamburg, 10 cks. Dunkirk, 20	Pyrites— Huelva, 2,142 t.	Saltpetre Rotterdam, 100 bgs. Hamburg, 100 9 cks.	Sodium Nitrate— Rotterdam, 4 cks.	Waste Salt— Hamburg, 200 cks. 375 t.
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GRIMSBY.

Week ending July 22nd.

Chemicals (otherwise undescribed) Hamburg, 14 pks.	Farina— Hamburg, 40 bgs.	Size— Antwerp, 5 cks.
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EXPORTS OF CHEMICAL PRODUCTS

OF

THE PRINCIPAL PORTS OF THE UNITED KINGDOM.

LONDON.

Week ending July 26th.

Acids—		
Rio Janeiro, 4 kgs.	£14	
St. Petersburg, 10 t.	200	
Alkali—		
Natal, 7c.	£18	
Aluminous Cake—		
Bordeaux, 5 t. 2 c.	£33	
Ammonia (Liquid)—		
B. Ayres, 20 cs.	£23	
Huelva, 6 c.	7	
Ammonium Chloride—		
Varna, 10 c.	£16	
Galatz, 2 t. 14	85	
Constantinople, 5	156	
Messina, 12	21	
Ammonium Sulphate—		
Demerara, 12 t. 2 c.	£176	
Amorphous Phosphorus—		
Cape Town, 10 cs.	£143	
Arsenic—		
Calcutta, 1 t.	£17	
Melbourne, 15 c.	12	
Natal, 10	8	
Napier, 20 drs.	16	
Bisulphite of Lime—		
Natal, 1 t. 15 c.	£24	
Borax—		
Melbourne, 5 t. 2 c.	£360	
Hamburg, 9	67	
Harlingen, 10 cs.	15	
Sydney, 3	138	
Carbolic Acid—		
Genoa, 10 cks.	£99	
Hamburg, 16	37	
Halifax, 11 c.	24	
Baltimore, 16 cs.	90	
Carbon Bisulphide—		
Boston, 15 drs.	£101	
Caustic Soda—		
Algoa Bay, 11 c.	£18	
Sydney, 5 t. 7	64	
Philadelphia, 15	156	
E. London, 1	40	
Madras, 1	18	
Port Elizabeth, 5	7	
Chemicals (otherwise undescribed)		
Karachi, 21 cks.	£64	
Bombay, 9 kgs. 15 brs.	44	
Cape Town, 1 t. 10 c.	23	
Algoa Bay, 3 cs.	9	
Adelaide, 5	41	
Citric Acid—		
Melbourne, 10 c.	£79	
Hamburg, 2 t.	334	
Moscow, 1	160	
Genoa, 2	320	
Calcutta, 1 cs.	5	
Madras, 1 c.	8	
St. Petersburg, 1	160	
Rotterdam, 3	25	
Antwerp, 4	32	
Coal Products—		
Anthracene		
Rotterdam, 270 cks.	£2,201	
Benzol		
Rotterdam, 29 drs.	£463	
Hamburg, 59	549	
Treport, 12 cks.	119	
Boulogne, 95	395	
Creosote		
Danzig, 100 brs.	£47	
Dieppe, 15 487 galls.	81	
Naphthalene		
Treport, 110 pkgs.	£79	
Antwerp, 1 ck.	10	
Stettin, 132 bgs.	49	
Paraffin Wax		
Hobart, 3 tks.	£116	
Launceston, 20 bgs.	45	
Pitch		
Gothenburg, 200 brs.	£96	
Antwerp, 185 t.	213	
Alexandria, 250	83	
Vigo, 58 10 c.	95	
Pontevedra, 62	100	

Rotterdam, 202	232	
Amsterdam, 115	132	
Boston, 750 cks.	338	
New York, 500	254	
Baltimore, 423	178	
Tar		
Gothenburg, 25 rns.	£16	
Natal, 500 drs.	27	
Boston, 225 cks.	101	
Sydney, 20 brs.	14	
Melbourne, 60	14	
Demerara, 10	12	
Tar Oil		
Marseilles, 99 brs.	£48	
Copperas—		
Mauritius, 20 cks.	£9	
Varna, 7 t. 11 c.	14	
Bourgas, 5	3	
Copper Sulphate—		
Oporto, 8 t. 10 c.	£146	
Varna, 1	25	
Galatz, 2	44	
Odessa, 5	80	
Cream of Tartar—		
Wellington, 10 c.	£33	
Sydney, 1 t.	75	
Algoa Bay, 2	11	
Gisborne, 5	22	
Disinfectants—		
Bombay, 19 drs.	£16	
Dunedin, 5 c.	21	
Jeddah, 36 pkgs.	17	
Sydney, 6 cs.	8	
Algoa Bay, 50	39	
Penang, 100	35	
Hamburg, 20 cks.	100	
Calcutta, 5	15	
Gisborne, 2	15	
Barbadoes, 6	10	
Flowers of Sulphur—		
E. London, 50 kgs.	£28	
Cape Town, 26 t. 18 c.	308	
Hydrochloric Acid—		
Huelva, 12 c.	£13	
Iodine—		
Hamburg, 5 kgs.	£392	
Manure—		
Memel, 450 t.	£1,145	
Gothenburg, 68	171	
Montreal, 3	125	
Roscoff, 104	470	
Demerara, 70	707	
Berbec, 20	205	
Nitric Acid—		
Jersey, 52 chys.	£102	
Huelva, 7 c.	13	
Oxalic Acid—		
Bombay, 10 c	£14	
Potash Crystals—		
Brussels, 4 c.	£17	
New York, 14	110	
Potash Salts—		
Nata, 28 t. 17 c.	£3,775	
Potassium Bichromate—		
Antwerp, 2 t.	£80	
Rio Janeiro, 1 ck.	£11	
Potassium Chlorate—		
Sydney, 10 c.	£37	
Lisbon, 5	17	
Malta, 3	11	
Potassium Cyanide—		
Shanghai, 4 cs.	£45	
Saltcake—		
Antwerp, 265 t.	£464	
Saltpetre—		
Ghent, 12 c.	£13	
Hamburg, 11 t. 16	271	
Oporto, 7	143	
Bombay, 10	11	
Salts of Soda & Salts of Lime—		
Brussels, 2 cs.	£22	
Sheep Dip—		
Algoa Bay, 1 t. 3 c. 150 drs.	£115	
Hamburg, 20 cs.	60	
Natal, 30	7	
Calcutta, 388 pkgs.	71	
Odessa, 50	150	
Adelaide, 1 t. 5	35	

Soda—		
Sulina, 1 t.	£5	
Cape Town, 1	6	
Port Elizabeth, 13 c.	10	
Soda Crystals—		
Alexandria, 1 t.	£4	
Sodium Bicarbonate—		
E. London, 2 t.	£14	
Constantinople, 10 c.	4	
Madras, 10	3	
Demerara, 10	4	
Sodium Bichromate—		
Brussels, 5 t.	£200	
Sodium Oxalate—		
Penang, 11 c.	£17	
Sodium Silicate—		
Madras, 1 t. 13 c.	£9	
Strontium Nitrate—		
New York, 1 t. 6 c.	£33	
Sulphur—		
E. London, 2 t. 14 c.	£20	
Hobart, 3	18	
Cape Town, 200 pkgs.	175	
Algoa Bay, 100 kgs.	56	
Cape Town, 120	78	
Sulphuric Acid—		
Amsterdam, 1 t. 6 c.	£10	
E. London, 25 cs. 8 drs.	26	
Natal, 57	55	
Superphosphate—		
Treport, 29 t. 18 c.	£180	
Stettin, 100	345	
Riga, 507	1,521	
Stoepermunde, 210	787	
Tartaric Acid—		
Wellington, 2 c.	£11	
Sydney, 2 t.	210	
Madras, 2 cs.	11	
Gisborne, 2	11	

LIVERPOOL.

Week ending July 26th.

Acetate of Lime—		
Rio de Janeiro, 1 t.	£8	
Alkali—		
Montreal, 2 t.	£12	
Alum—		
Montreal, 9 t. 3 c. 2 q.	£44	
Galatz, 1	9	
Aleppo, 5	3	
Bourgas, 2	1	
Varna, 2	6	
Bombay, 11	18	
Ammonium Carbonate—		
Copenhagen, 5 c.	£9	
Stettin, 3	1 q.	5
Halifax, 5	1	8
Antwerp, 10	16	
Ammonium Chloride—		
Montreal, 6 c.	£9	
Sydney, 7	2 q.	13
Philadelphia, 17 t. 10	2	425
Constantinople, 2	10	88
Galatz, 5	9	
Ammonium Sulphate—		
Las Palmas, 24 t. 19 c.	£388	
Sourabaya, 32	5	1 q.
Hamburg, 10	11	3
Bremerhaven, 30	14	1
Valencia, 30	15	2
Antimony—		
Bombay, 6 c.		
Havana, 1 ck.		
Barium Chlorate—		
Hamburg, 9 c.	£40	
Bleaching Powder—		
Boston, 762 cks.		
Ferrol, 2		
Havana, 10 cs.		
Montreal, 27		
New York, 439		
Algoa Bay, 4		
Halifax, 1 bx.		
Little Popo, 500 brs.		
M. Video, 4 pkgs.	2	

Naples, 25 cks.		
San Sebastian, 66		
Seville, 7		
Boracic Acid—		
Boston, 4 t. 7 c.	1 q.	£144
Montreal, 1	16	1
Havana, 1	1	2
Borax—		
Hamburg, 1 t.	2 q.	£31
Marseilles, 10 c.	1	15
B. Ayres, 9	2	14
Guantanamo, 5	5	3
Stettin, 5	5	3
Ukaka, 14	5	5
Galatz, 2	3	54
Caoutchouc—		
Callao, 1 cs.		
Gaboon, 1		
Carbolic Acid—		
Rotterdam, 7 t. 5 c.		£458
Vera Cruz, 1	3 q.	7
Rouen, 3	6	95
Calcutta, 2	2	7
Odessa, 18	2	21
N. Orleans, 16	9	2
Castor Oil—		
Accra, 12 cs.		
Sierra Leone, 5		
Caustic Soda—		
Alicante, 40 dms. 20 brs.		
Bahia, 50		
Barcelona, 430		14 cks.
Bombay, 25		
Boston, 150		
Bremen, 16		
Brisbane, 30		
B. Ayres, 30		
Calcutta, 6		
Corunna, 20		
Galatz, 65		79 kgs.
Halifax, 35		
Hamburg, 55		
Havana, 100		
Havre, 25		
Malaga, 49	24	
Montreal, 195		
Newcastle, 72		
New Orleans, 60		
New York, 525	40	
Odessa, 125		
Pernambuco, 65		
Rio de Janeiro, 20		
Rotterdam, 143		
St. John's, Nfld., 30		
St. Petersburg, 180		
Santander, 6		
Seville, 300	100	
Stettin, 40		
Adelaide, 35		
Alexandretta, 100		
Calharian, 8		
Callao, 50		
Cartagena, S.A., 10		
Corfu, 20		
Dunedin, 6 pkgs.		
Hio, 40		
Hong Kong, 20		
Jaffa, 70		
La Guayra, 40		
Lisbon, 290		
Marseilles, 102		
Melbourne, 40		
Mollendo, 1 cs.		
Paysandu, 50		
Pt. Elizabeth, 17 bxs.		
Toronto, 10		
Chemicals (otherwise undescribed)		
Hamburg, 10 c.		£18
Stettin, 1 t.		35
Galatz, 1	4	2 q.
Larnaca, 1	10	7
Marseilles, 1	16	3
Merseyne, 1	16	3
Kurrachee, 18	3	29
Rangoon, 10		17
Philadelphia, 15		25
Antwerp, 1	1	35
Gothenburg, 18		20
Oporto, 4		7
Barcelona, 1	16	3
Genoa, 8	3	239

China Clay—

Bombay,	73 t.
Boston,	370 10 c.
Genoa,	50 cks.

Coal Products—

Aniline Colours—	
Shanghai,	60 cs.
Aniline Oil	
Rouen,	5 dms.
Tar	
Batanga,	3 cks.
Batavia,	30 brls.
Galatz,	25
Port Said,	2
Ukaka,	1

Cobalt Oxide—

Valencia,	3 q.	£35
Gijon,	1 c.	33
Hamburg,	2 cs.	77

Copperas—

Wilmington,	43 t.	5 c.	2 q.	£71
Calcutta,	32			57

Copper Sulphate—

Beyrout,		10 c.		£8
Leghorn,	5 t.		1 q.	80
Genoa,	91	17	2	1,419
Oporto,	23	8	1	366
Bombay,	15			241
Calcutta,	10			161
Naples,	16	10	2	257
Bari,	25	3	1	378
Rouen,	11	6		181
Madras,	1	5		19
Brindisi,	12	17	3	15
Venice,	12	19	1	201
Ancona,	2	3	2	34
Puerto Cabello,		4		5
Bordeaux,	20	1		320

Gypsum—

New York,	10 t.	4 c.	3 q.	£35
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Iron Oxide—

Santos,	17 t.	£40
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Iron Sulphate—

Boston,	18 c.	£6
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Magnesia—

Paris,	35 cs.	
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Magnesium Sulphate—

Montreal,	25 brls.	
Bombay,	60 bgs.	

Manure—

Marseilles,	5 c.	£5
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Metallic Sodium—

Rotterdam,	2 t.	8 c.	3 q.	£601
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Nickel Salts—

Havre,	2 c.	2 q.	£8
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Orchil (Liquor)

Boston,	5 cks.	
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Paint—

Barcelona,	4 cks.	
Belize,	50 kgs.	
Callao,	56	
Cienfuegos,	9	
Galatz,	56	
Gr. Bassam,	5	
Ibrail,	14	40
Lagos,	1	40
La Union,	2	
Para,	2	10 dms.
Port Natal,	24 cs.	
Port Said,	24	10
Progresso,	46	5
St. John's, Nfld.,	2 brls.	
Seville,	8	
Trebizonde,	8	
Trieste,	8	
Valparaiso,	25	
Antwerp,	1	18 kgs.
Bilbao,	3	24
Calcutta,	3	80
C. C. Castle,	13	40
Colombo,	13	8
Fernando Po,	60	
Genoa,	4	
Gibraltar,	5	
Matanzas,	10	
Old Calabar,	2	
Paysandu,	10	
Pernambuco,	25	
Rio de Janeiro,	23	3 cs.
Rotterdam,	94	
Sierra Leone,	7	
Sulina,	10	
Sydney,	4	
Vera Cruz,	27	

Painters' Colours—

Alexandria,	120 kgs.	
Bahia,	95	
Bermuda,	6 cks.	
B. Ayres,	87 cs.	
Calcutta,	20	81
Candia,	5 tcs.	20 frks.
Cape Town,	159	15

Constantinople, 675

Corfu,		9 brls.
Havana,	30	1 cs.
Kingston, Jam.,	9	6 brls.
Lisbon,		21
Montreal,	110	
Para,	26 pkgs. 90	20
Philadelphia,	100	
Adelaide,	24	29 dms.
Belize,	38 135	9
Maranham,		20 fksns.
New York,	25	2 cs.
Penang,	3	
Pernambuco,	1	4

Paraffin Wax—

Leghorn,	50 bgs.
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Phosphate—

St. John's, Nfld.,	2 cs.
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Phosphorus—

Vera Cruz,	9 c.	2 q.	11
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Picric Acid—

New York,	17 c.	2 q.	£85
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Potassium Bichromate—

Syria,	7 c.	£16
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Potassium Carbonate—

Puerto Cabello,	9 c.	£8
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Potassium Chlorate—

Trieste,	2 c.	£6
St. Petersburg,	23 t.	1,515
Naples,	1	14
Antwerp,	6	19
Konigsberg,	10	31
Stettin,	5	336
Genoa,	1	80
Hiogo,	26	4
San Juan,	3	204
Kobe,	5	282
Rouen,	1	77
Rotterdam,	6	10
New York,	6	5
Oporto,	6	19
Tampico,	2	7
Santos,	1	67
Hamburg,	7	2
Shanghai,	1	5

Potassium Prussiate—

Genoa,	6 c.	2 q.	£22
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Potassium Stannate—

Bombay,	1 t.	6 c.	3 q.	£105
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Salt—

Adelaide,	75 t.
Antwerp,	325
Black Point,	5
Bonny,	10
Boston,	1,176
B. Ayres,	8
Calcutta,	3,625
Cameroons,	33
C. C. Castle,	5
De Gama,	25
Ghent,	50
Melbourne,	789
Montreal,	1,765
Port Mulgrave,	650
Rotterdam,	225
S. John's, N.B.,	795
Valparaiso,	150
Wilmington,	250
Akassa,	400
Batanga,	8
Charleston,	420
Eloby,	9
Newcastle,	600
Nyanza,	4
Old Calabar,	10
Para,	71
Philadelphia,	430
Rio de Janeiro,	2
Santos,	1
Sydney,	40
Trinidad,	17
Ukaka,	30
Victoria, B.C.,	15

Salt Cake—

Philadelphia,	80 t.	12 c.	£192
Ghent,	299		354

Saltpetre—

Piræus,	7 t.	10 c.	£100
Para,	1		23
B. Ayres,	19	3 q.	22

Sheep Dip—

Rosario,	4 t.	£10
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Size—

Barcelona,	18 cks.
Rouen,	16

Soap—

Accra,	225 bks.
Akassa,	80 dms.
Algoa Bay,	50
Antwerp,	250
Axim,	229
Barbadoes,	100
Batanga,	55
Bluefields,	100
Bombay,	5,136
Bonny,	500
Boston,	16
B. Ayres,	12
Calcutta,	207
Caldera,	6
Cameroons,	150
Cape Town,	1,500
Carthage, N.G.,	4
E. London,	2,882
Elmina,	25
Eloby,	20
Gaboon,	300
Genoa,	85
Kurrachee,	860
Lagos,	49
Malta,	2
New York,	800
Penang,	15
Port Natal,	681
S. John's, Nfld.,	190
Shanghai,	5,143
Singapore,	250
Sourabaya,	3
Toronto,	101
Valparaiso,	50
Warri,	300
Zurich,	120
Alexandria,	6
Bahia,	2
Bathurst,	82
Bocas,	50
Brussels,	400
Bugama,	200
Bussorah,	50
C. C. Castle,	100
Gibraltar,	500
Gr. Popo,	20
Hong Kong,	102
Kingston, Jam.,	93
Las Palmas,	410
Liege Meuse,	400
Little Popo,	30
Monrovia,	62
Mossel Bay,	812
Odessa,	320
Opobo,	120
Para,	400
Ponce,	50
Pt. Elizabeth,	550
Rangoon,	500
Rotterdam,	500
Rouen,	10
Salt Pond,	50
Trieste,	1
Vera Cruz,	3

Soapstone—

Hiogo,	50 brls.
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Soda Alkali—

Calcutta,	20 brls.
Catania,	20
Leghorn,	40
Melbourne,	40
Montreal,	25
Smyrna,	33
Toronto,	30

Soda Ash—

Antwerp,	41 cks.	50 bgs.
Barcelona,	44	
Batavia,	5	48 brls.
Boston,	311	1,100
B. Ayres,	80	8
Copenhagen,	40	
Corfu,	290	
Genoa,	32	
Ghent,	3	
Gothenburg,	100	
Hamburg,	100	
Maranham,	75	
Montreal,	159	
New York,	134	3,704
Newfairwater,	37	
Philadelphia,	65	800
Rio Grande,	35	
Rotterdam,	350	
St. Petersburg,	185	
Salonica,	150	
San Francisco,	195	195 sks.
Stettin,	38	100 bgs.
Yokohama,	125	50 brls.
Callao,	29	315
Havana,	3	140 cs.
Oporto,	10	
Paysandu,	50	
Porto Alegre,	50	
Smyrna,	60	

Soda Crystals—

Malta,	14 brls.
Montreal,	125 kgs.
New York,	126
Philadelphia,	280
St. John's, Nfld.,	25
Valparaiso,	100
Batavia,	15
Boston,	280
Corfu,	5
Gibraltar,	15
Patras,	20
Pt. Elizabeth,	50
Salonica,	13

Soda Salts—

Montreal,	10 cks.
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Sodium Acetate—

Vera Cruz,	1 cs.
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Sodium Biorate—

Hamburg,	20 cks.
Montreal,	42 brls.
Rotterdam,	4
Yokohama,	50 cs.

Sodium Bicarbonate—

Antwerp,	164 kgs.	19 cks.	10 brl
Barcelona,	200		
Bilbao,	80		
B. Ayres,	10		
Copenhagen,	10	2	
Galatz,			20
Genoa,	102	55	
Hamburg,	10	2	
Havre,	325	2	
Ibrail,	40		
Kobe,	1,000		
Leghorn,	40		
Malaga,	75		
Marseilles,	132		30
M. Video,	45		
Nantes,	21		
Oporto,	40		
San Francisco,	30		
Yokohama,	800		
Algiers,	40		
Batavia,	200		
Rotterdam,	44		
Salonica,	20		
Samarang,	5		
Tampico,	230		
Winnipeg,	150		

Sodium Bichromate—

Passages,	6 cks.
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Sodium Chlorate—

Hamburg,	110 kgs.
Rotterdam,	20
Vera Cruz,	2 cks.

Sodium Hyposulphite—

Venice,	4 cks.
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Sodium Silicate—

Adelaide,	40 cks.
Barcelona,	85 brls.
Bilbao,	20
Catania,	10
Gijon,	6
Havre,	4
Ibrail,	8
Lisbon,	59
Malta,	10
Oporto,	10
Passages,	100
Corfu,	15
Malaga,	2
Seville,	35
Sfax,	10

Sulphur—

Boston,	201 t.	5 c.	£78
E. London,	3	12	
Montreal,	50	2	19
Ceara,	1		
Para,	1		

Sulphuric Acid—

Kurrachee,	100 cs.	£3
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Tartaric Acid—

Bahia,	4 c.	£2
Havana,	2	

Turpentine—

HULL.

Week ending July 22nd.

Alkali—

Flume,	20 bls.
Riga,	7 cks.
Stettin,	10

Ammonium Sulphate—

Danzig,	367 bgs.
Dunkirk,	184
Rotterdam,	450

Borax—

Riga,	3 cks.
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Carbolic Acid—

Rotterdam,	117 cks.
Trieste,	109

Caustic Soda—

Riga,	52 dms.
Riga,	752
Stettin,	42
Venice,	10

Chemicals (otherwise undescribed)

Antwerp,	22 cks.	20 pks.
Abo,	2	
Bergen,	1	3 cks.
Copenhagen,	1	
Christiania,	11	
Christiansand,		151 slbs.
Danzig,	1	
Dresden,	1	
Flushing,	4	
Gothenburg,		10 pks.
Hamburg,	3	16
Konigsberg,		20
New York,	10	
Riga,	5	
St. Petersburg,	200 c.	
Stettin,		20 pks.
Trieste,	5	1

Cottonseed Oil—

Antwerp,	135 c.
Bremen,	61
Rotterdam,	975
Stavanger,	69
Trieste,	352

Creosote—

Antwerp,	18 cks.
Copenhagen,	30
Danzig,	100

Dyestuffs (otherwise undescribed)

Boston,	4 cks.
Christiania,	1
St. Petersburg,	1
St. Petersburg,	200

Linseed Oil—

Antwerp,	17 c.
Abo,	40
Aalesund,	20
Bergen,	69
Copenhagen,	17
Christiania,	461
Christiansand,	37
Drontheim,	17
Hamburg,	150
Stralsund,	7,228
Trieste,	193

Litharge—

Trieste,	4 cks.
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Ochre—

Amsterdam,	3 cks.
Copenhagen,	6

Painters' Colours—

Antwerp,	4 cs.	22 cks.	19 dms.
Amsterdam,	1	4	
Abo,		1	
Aalesund,		2	
Bremen,	1	2	
Bergen,			24 pks.
Copenhagen,		5	
Christiania,	1	1	
Catania,		7	
Dunkirk,	1	1	
Drontheim,		1	
Flume,		2	
Gothenburg,		2	28 pks.
Ghent,	11		
Hamburg,	5	6	
Konigsberg,		3	
New York,		200	
Rotterdam,	6	10	
Riga,		56	
St. Petersburg,		180	
Stettin,		16	
Stockholm,			2 dms.
Trieste,	11		

Pitch—

Antwerp,	394 t.
Catania,	64 cks.

Size—

Bremen,	20 cks.
Flushing,	10

Soap—

Copenhagen,	2 cs.
Gothenburg,	24
Hamburg,	1
Rotterdam,	20

Sulphur—

Stettin,	100 bls.
Flushing,	8 cks.
Stettin,	17
Stockholm,	10

Tallow—

Flushing,	8 cks.
Stettin,	17
Stockholm,	10

Tar—

Antwerp,	1 ck.
Amsterdam,	107
Bergen,	3
Gothenburg,	150
Hamburg,	2
New York,	3
Stockholm,	10

Turpentine—

New York,	15 dms.
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Varnish—

Antwerp,	3 cs.
Amsterdam,	2 cks.
Aalesund,	1
Copenhagen,	1
Flushing,	5
Hamburg,	4
Rotterdam,	2

GLASGOW.

Week ending July 27th.

Ammonium Sulphate—

France,	87 t. 18 c.	£1,053
Demerara,	307 11 1/4	3,940

Asbestos—

Demerara,	8 1/2 c.	£29
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Bleaching Powder—

Bombay,	1 t. 19 1/4 c.	£21. 17s.
Hong Kong,	15	£130
Calcutta,	41 19 1/2	250

Borax—

Hamburg,	11 cks.	£150
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Castor Oil—

Demerara,		£61
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Caustic Soda—

France,	15 t. 12 c.	£136
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Chloride of Lime—

New York,	9 t. 14 1/2 c.	£80
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Coal Products—

Creosote Oil		
Bordeaux,	260 t. 11 c.	£369
Christiania,		20 bls. 10
New York,	21	59

Naphtha

Rouen,	9 t. 8 1/4 c.	£130
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Pitch

Calcutta,		£26
Montreal,	71 t. 1 c.	95
Boston,	216 14	340
Gothenburg,	73 6 1/4	200
Hamburg,		532 cks. 107
Odessa,	58 16 1/2	88
New York,	177 8 1/4	270

Tar

Calcutta,		£185
Hamburg,	6 dms. 142 cks.	144
Odessa,	33 t. 15 c.	£57. 10s.
Rotterdam,		30 pns. £210
Bombay,	11 9	£33. 15s.
St. John's, N.F.,	35 bls. 15 hf bls.	11

Tar Oil

Hamburg,	5 cks.	£3
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Dyestuffs—

Extracts		
Montreal,	10 t. 11 1/4 c.	£331
Fustic Extract		
Montreal,	3 t. 9 1/2 c.	£140. 14s.
Logwood		
Boston,	3 t. 5 c.	£40
Montreal,	39 1 1/2	279

Copper Sulphate—

France,	39 t. 12 c.	£633
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Cottonseed Oil—

Hamburg,	30 bls.	£150
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Lead Acetate—

Montreal,	1 t. 18 1/4 c.	£46
Bombay,	4 2 1/2	63

Lime—

Demerara,	1 t. 6 1/4 c.	£37
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Linseed Oil—

Rio Janeiro,	2 t. 11 1/4 c.	£61
Peru,		£5. 10s.
Jamaica,	7 8 1/4	£170
Straits,	2 6 1/4	64
Philippines,	2 7	58
Singapore,	1	23
Cape Colony,	2 3 1/4	58
Natal,	2	49

Magnesium Sulphate—

Bombay,	10 t.	£43
Rio Janeiro,	22 11 1/4 c.	130
Christiania,	28	70

Manganese—

Hamburg,	22 cks.	£90
Antwerp,	11 t. 11 c.	170

Manganese Oxide—

New York,	10 t. 4 c.	£103
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Ochre—

New York,	2 t. 1 1/4 c.	£31
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Paint—

Rio Janeiro,	5 t. 14 1/4 c.	£53
Peru,	5 3 1/2	60
Jamaica,	7 2 1/4	108
Calcutta,	5 16 1/2	87
Amsterdam,		£9. 16s.
Straits,	8 9	135
Singapore,	3 1 1/4	49
Hamburg,	20 cs.	13
Calcutta,		49
Demerara,		22
Bombay,		£58. 1cs.
Cape Colony,		£38

Painters' Colours—

Bombay,		299
Philippines,		92
Hong Kong,	2 t. 5c.	£32
Amsterdam,	9 cks.	80

Paraffin Wax—

Trieste,	10 t. 3 1/4 c.	£370
Rio de Janeiro,	4 6 1/4	108
France,	5 18 1/4	170
Antwerp,	13 3 1/4	340
Bombay,	14 1/4	22
Hamburg,	112 bgs.	250

Potassium Bichromate—

Rouen,	12 t. 1 1/2 c.	£549
Montreal,	4 18	195
Boston,	8 4	306
Japan,	13 6 1/2	519
Antwerp,	13 2	513
New York,	36 4	1,352
Bombay,	1	43

Potassium Prussiate—

New York,	8 t. 19 c.	£820
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Soap—

Rouen,	5 t. 10 1/2 c.	£78
Trinidad,	4 5	60
Bombay,	3 3 1/4	38
Philippines,	1 5	22
New York,	21	284

Soda Ash—

New York,	10 t. 10 1/4 c.	£42
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Sodium Bichromate—

Rouen,	5 t.	£160
Montreal,	5 1 c.	165
Antwerp,	11 15 1/4	382

Turpentine—

Straits,	17 1/4 c.	£29. 17s.
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Ultramarine—

Hong Kong,	10 1/4 c.	£31
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Varnish—

Hong Kong,	4 t. 8 1/4 c.	£66
Cape Colony,		47

White Lead—

Cape Colony,	2 t.	£40
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White Lead and Paint—

Mauritius,	9 t. 9 1/2 c.	£95
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TYNE.

Week ending July 22nd.

Alkali—

Hamburg,	11 t. 12 c.	
Bergen,	3 1	
St. Petersburg,	6 16	
Amsterdam,	19 12	

Antimony—

Hamburg,	1 t.	
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Arsenic—

Odense,	1 t. 6 c.	
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Barium Binoxide—

Dunkirk,	19 t.	
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Barium Chloride—

Gothenburg,	3 c.	
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Barytes—

Hamburg,	100 t.	
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Bleaching Powder—

Antwerp,	28 t.	
Hamburg,	31 1 c.	
Christiania,	15 2	
Lisbon,	12 7	
Rotterdam,	22 15	
Copenhagen,	2 12	
St. Petersburg,	435 1	
Amsterdam,	8 14	
Drontheim,	15	

Caustic Soda—

Rotterdam,	1 c.
Antwerp,	1
Christiania,	4 t. 18
Seville,	10 3
Copenhagen,	4 12
St. Petersburg,	146 11

China Clay—

Seville,	13 t. 6 c.
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Copperas—

Copenhagen,	2 t. 5 c.
Bergen,	2 19

Magnesia—

Antwerp,	19 c.
Hamburg,	1 t. 2

Paint—

Rotterdam,	10 glns.
Antwerp,	19 c.
Hamburg,	2 t.
Bergen,	1 4

Painters' Colours—

Rotterdam,	13 c.
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Paraffin Wax—

Copenhagen,	4 t. 19 c.
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Salt—

Falkland Isles,	25 t.
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Sheep Dip—

Falkland Isles,	1 t. 19 c.
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Soap—

Rotterdam,	1 1/4 c.
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Soda—

WEDNESDAY, AUGUST 2nd, 1893.

The values stated are F.O.R. at maker's works, or at usual ports of shipment in U.K. The price in different localities may vary

Acids:—				£	s.	d.					£	s.	d.	
Acetic, 25% and 40%	per cwt	7/-	&	10/6			Lime, Acetate (brown)	per ton	5	17	6			
" Glacial	"	"	"	50/-			" (grey)	"	10	0	0			
Arsenic S.G., 2000	"	0	14	6			Magnesium (ribbon and wire)	per oz.	0	2	3			
Fluoric	per lb.	0	0	33/4			" Chloride (ex ship)	per ton	2	7	6			
Muriatic (Tower Salts), 30° Tw.	per bottle	0	0	10			" Carbonate	per cwt.	1	17	6			
" (Cylinder), 30° Tw.	"	0	3	0			" Hydrate	per ton	17	0	0			
Nitric 80° Tw.	per lb.	0	0	13/4			" Sulphate (Epsom Salts)	per ton	2	19	0			
Nitrous	"	0	0	13/4			Manganese, Sulphate	"	17	15	0			
Oxalic	nett	0	0	3			" Borate	per cwt.	2	12	6			
Phosphoric, 1750°	"	0	1	2 1/2			" Ore, 70%	per ton	4	5	0			
Picric	"	0	1	0			Methylated Spirit, 61° O.P.	per gallon	0	2	0			
Sulphuric (fuming 50%)	per ton	15	10	0			Naphtha (Wood), Solvent	"	0	3	6			
" (monohydrate)	"	5	10	0			" Miscible, 60° O.P.	"	0	4	0			
" (Pyrites, 168°)	"	3	0	0			Oils:—							
" 150°	"	1	5	0			Cotton-seed	per ton	24	0	0			
" (free from arsenic, 145°)	"	1	6	0			Linseed	"	22	10	0			
Sulphurous (solution) S.G. 1025	"	3	0	0			Lubricating, Scotch, 890°—895°	"	7	5	0			
Tannic (pure)	per lb.	0	1	2			Petroleum, Russian	per gallon	0	0	4			
Tartaric	"	0	0	11 1/2			" American	"	0	0	5 1/2			
Arsenic, white powdered	nett	per ton	13	15	0		Potassium (metal)	per oz.	0	3	7			
Alum (loose lump)	"	"	5	2	6		" Bichromate	per lb.	0	0	4 1/2			
Alumina Sulphate (pure)	"	"	5	0	0		" Carbonate, 90% (ex ship)	per ton	16	15	0			
Aluminoferic	"	"	2	10	0		" Chlorate	per lb.	0	0	8			
Aluminium	per lb.	"	0	4	0		" Cyanide, 98%	"	0	2	0			
Ammonia, Anhydrous	"	"	0	1	0		" Hydrate (Caustic Potash) 80/85%	per ton	21	10	0			
" 880=28°	per lb.	"	0	0	2 1/4		" (Caustic Potash) 75/80%	"	20	10	0			
" =24°	"	"	0	0	2		" (Caustic Potash) 70/75%	"	20	0	0			
" Carbonate	nett	"	0	0	3 1/2		" Nitrate (refined)	per cwt.	1	2	6			
" Muriate	per ton	22	10	0			" Permanganate	per cwt.	3	5	0			
" (sal-ammoniac) 1st & 2nd	per cwt.	37/-	&	35/-			" Prussiate Yellow	per lb.	0	0	9			
" Nitrate	per ton	42	0	0			" Sulphate, 90% (ex ship)	per ton	9	15	0			
" Phosphate	per lb.	0	0	10 1/2			" Muriate, 80% (do.)	"	8	0	0			
" Sulphate (grey) London	per ton	13	12	6			Silver (metal)	per oz.	0	2	8 1/2			
" (grey) Hull	"	"	13	12	6		" Nitrate	"	0	2	10			
Aniline Oil (pure)	per lb.	"	0	6			Sodium (metal)	per lb.	0	3	4			
Aniline Salt	"	"	0	5 1/2			" Carb. (refined Soda-ash) 48%	nett	per ton	5	17	6		
Antimony	per ton	45	10	0			" (Caustic Soda-ash) 48%	"	4	15	0			
" (tartar emetic)	per lb.	"	0	1	0		" (Carb. Soda-ash) 48%	"	4	15	0			
" (golden sulphide)	"	"	0	0	10		" (Carb. Soda-ash) 58%	"	4	10	0			
Barium Chloride	per ton		7	10	0		" (Soda Crystals)	"	2	17	6			
" Carbonate (native)	"	"	3	10	0		" Acetate (ex-ship)	"	16	0	0			
" Sulphate (native levigated)	"	"	45/-	to	75/-		" Arseniate, 45%	"	12	0	0			
Bleaching Powder, 35%	nett	"	8	0	0		" Chlorate	per lb.	0	0	9			
" Liquor, 7%	"	"	3	10	0		" Borate (Borax)	net, per ton	29	0	0			
Bisulphide of Carbon	"	"	11	15	0		" Bichromate	per lb.	0	0	3			
Chromium Acetate (crystal)	per lb.	0	0	6			" Hydrate (77% Caustic Soda) (f.o.b.) net pr. ton	lots	11	0	0 1/2			
Calcium Chloride	per ton	2	5	0			" (74% Caustic Soda)	"	10	10	0			
China Clay (at Runcorn) in bulk	"	"	17/6	to	35/-		" (70% Caustic Soda)	"	9	10	0			
Coal Tar Products and Dyes:—							" (60% Caustic Soda)	"	8	10	0			
Alizarine (artificial) 20%	net	per lb.	0	0	8		" (60% Caustic Soda, cream) (f.o.b.)	"	8	5	0			
Magenta	"	"	0	3	9		" Bicarbonate	"	6	10	0			
Anthracene, 30% A, f.o.b. London	per unit	per cwt.	0	1	2		" Hyposulphite	"	6	10	0			
Benzol, 90% nominal	"	per gallon	0	1	4		" Manganate, 30%	"	16	0	0			
" 50/90	"	"	0	1	4		" Nitrate (95%) ex-ship Liverpool	per cwt.	0	10	0			
Carbolic Acid (crystallised 40°)	per lb.	0	0	6 1/4			" Nitrite, 98%	per ton	27	10	0			
" (crude 60°)	per gallon	0	1	7			" Phosphate	"	15	0	0			
Creosote (ordinary)	"	"	0	0	1		" Prussiate	per lb.	0	0	7			
" (filtered for Lucigen light)	"	"	0	0	1 1/4		" Silicate (glass)	per ton	5	7	6 1/4			
Crude Naphtha 30% @ 120° C.	"	"	0	0	7		" (liquid, 100° Tw.)	"	4	5	0			
Grease Oils, 22° Tw.	per ton	2	5	0			" Stannate, 40%	per cwt.	3	0	0			
Pitch, f.o.b. Liverpool or Garston	"	"	1	5	0		" Sulphate (Salt-cake)	per ton	1	4	0			
Solvent Naphtha, 90% at 160°	per gallon	0	0	11			" (Glauber's Salts)	"	1	10	0			
" Lucigen" and "Wells" Oils	"	"	0	0	1 1/4		" Sulphide	"	8	10	0			
Copper	per ton	41	17	6			" Sulphite	"	6	5	0			
" Sulphate	"	"	16	0	0		Strontium Hydrate, 100%	"	8	10	0			
" Oxide (copper scales)	"	"	40	0	0		Sulphocyanide Ammonium, 95%	per lb.	0	0	7			
Glycerine (crude)	"	"	13	0	0		" Barium, 95%	"	0	0	5 1/4			
" (distilled S.G. 1250°)	"	"	43	0	0		" Potassium	"	0	0	7			
Iodine	nett, per oz.	0	0	9			Sulphur (Flowers)	per ton	8	0	0 1/2			
Iron Sulphate (copperas)	per ton	1	12	6			" (Roll Brimstone)	"	6	10	0			
" Sulphide (antimony slag)	"	"	2	0	0		" Brimstone: Best Quality	"	4	2	6			
Lead (sheet) for cash	"	"	11	10	0		Superphosphate of Lime (26%)	"	2	7	6			
" Litharge Flake (ex ship)	"	"	13	0	0		Tallow	"	27	10	0			
" Acetate (white)	"	"	25	15	0		Tin (English Ingots)	"	87	10	0			
" brown	"	"	17	10	0		" Crystals	per lb.	0	0	6			
" Carbonat: (white lead) pure	"	"	20	0	0		Zinc (Spelter)	per ton	17	0	0			
" Nitrate	"	"	20	0	0		" Chloride (solution, 96° Tw.)	"	5	15	0			

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All communications for the *Chemical Trade Journal* should be addressed, and Cheques and Post Office Orders made payable to—

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Readers are invited to forward items of intelligence, or cuttings from local newspapers, of interest to the trades concerned.

Articles, reports, and correspondence on all matters of interest to the Chemical and allied industries, home and foreign, are solicited. Correspondents should condense their matter as much as possible, write on one side only of the paper, and in all cases give their names and addresses, not necessarily for publication. Sketches should be sent on separate sheets.

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CURRENT TOPICS.

THE VALUE OF EXPERT EVIDENCE.

CHEMICAL experts are a most estimable *genus hominum*, and they often get placed in awkward positions through no fault of their own; though, on the contrary, they not unfrequently militate against their own welfare and status.

Last week, the profession received what was seemingly meant for a caustic little snub from one of our learned Judges. Though, as far as we know, not provoked through any fault of the experts, yet it serves very well to indicate how easy it is to open the door to scoffers, unless experts with the utmost circumspection confine themselves rigidly to their legitimate sphere.

The inference which the remarks of Mr. Justice Lawrance implied was that the evidence of the experts, valuable though it might be, and in the main correct, was yet deficient in sense; or rather in that kind of sense which is provokingly called common sense, presumably because it is so very uncommon.

The situation which led up to the Judge's remark was this: The pollution of a brook was in question, but the evidence put forward and the samples shown for the plaintiff and defendant respectively were so much at variance as to cause his Lordship to remark that "if he believed one side, a fouler stream never existed than this one, but if he believed the other side, a clearer and more beautiful stream was never seen." On this account he therefore resolved to put aside the scientific evidence and use his common sense. A very graceful act, too, for his Lordship to expend so much of that scarce commodity in filling the gap.

The thing is, how comes the evidence to be so conflicting? The samples shown by the one side were much clearer than those handed in by the other, and it was suggested that the inferior samples had been improperly or ignorantly taken.

But if the expert is to confine himself, as he should, to the statement of facts, how can such discrepancies arise as to make it appear that facts are not facts. We know it will be said that the expert is in a large measure in the hands of his client, as he has to go and take samples at the dictation of those who engage him, and not just at the time his scientific knowledge tells him would be the right time; but we cannot help feeling that such a highly unsatisfactory state of affairs as we have just referred to (and concerning which fuller particulars are given in our columns this week) might in a great measure be prevented by experts asserting their claims to the possession of at least a modicum of common sense, and adhering to what used to be the practice of the law even if it was not a condition of the same. And that practice was to only take samples which were to be shown in Court in the presence of a representative of each side, so that all possibility of suspicion being cast upon any sample was precluded. We have to live and learn, but that's not all; success and prestige result from applying the lesson learnt in practice, and so it is with experts even.

THE HEALTH OF CHEMICAL OPERATIVES.

However scantily the chemical industry and those employed in the same may benefit by the Labour Commission, there is every prospect of some good resulting from the inquiry which is being made by the Departmental Committee specially appointed to go into the question of unhealthy occupations in chemical works. The manufacture of bichrome and chromium compounds is deservedly receiving close attention to ascertain what improvements can be made. Information is being collected from all the centres of the chemical industry, which should be and is stated to be valuable. If properly collected it certainly ought to be dependable, and, as far as value goes, almost priceless compared with the garbled accounts which were some few months ago raked together for the delectation or dumbfounding of the credulous Southerner. The time before a report is expected is a matter of weeks, not years, and manufacturers should seize this opportunity of assisting in the compilation of reliable and trustworthy particulars if they wish to be truly represented to the public by the able committee dealing with this matter.

SEWAGE DISPOSAL SCHEMES.

BLACKBURN.

AT the last quarterly meeting of the Blackburn Town Council, held under the presidency of the Mayor (Mr. H. Whiteley), Alderman Eastwood made some important statements respecting the disposal of the town's sewage. He stated that contracts had been entered into to the amount of £40,000. for the construction of settling tanks at Samlesbury, and notwithstanding that, the Committee were not at all sanguine that a satisfactory solution of the difficult problem of dealing with the town's sewage had been found. From 1870 up to the present time, the Corporation had spent in conveying sewage from Witton to Samlesbury, in the purchasing of land, in easements, law expenses, alterations, farm buildings, etc., something like £170,000. This was a great expenditure of money, but it might even have to be greater still. At the present time the Committee only proposed to erect settling tanks, and to leave over the question of the desirability of further filtering beds. The Rivers Pollution Committee had served upon the Corporation a two months' notice, which expired on August 7th, requiring the Corporation to deal satisfactorily with their sewage, and unless they did so, proceedings would be taken against them for the enforcement of the decision of the Committee. The Corporation were doing their utmost to make their sewage as clear as possible, and under those circumstances it would be a very great hardship if proceedings were taken against them. He hoped the Rivers Pollution Committee of the Lancashire County Council would spare the Corporation that indignity.

BOLTON.

At Bolton, last week, Major General Crozier, R.E., one of the inspectors of the Local Government Board, held an inquiry into the application of the Corporation for sanction to borrow £75,000., apportioned as follows:—£30,000. for the proposed purchase of land at Back-o'-th'-Bank, and the execution thereon of works in connection with the disposal of scavenging refuse; £5,000. for works of sewerage; and £40,000. for purposes of electric lighting. Mr. Addison, Q.C., M.P., instructed by the town clerk (Mr. Hinnell), represented the Corporation; Mr. M. Fielding, solicitor, opposed on behalf of Dr. Livy and the Bolton Finance and Building Company, Limited; and Mr. T. H. Winder represented the executors of the late Mr. John Slater. The Mayor of Bolton (Alderman Nicholson) and many members of the Town Council were present. After evidence had been given by the Mayor, town clerk, borough surveyor, and treasurer, evidence from Leeds was called to show that the destructor system, which was in operation there, and which it was proposed to introduce at Back-o'-th'-Bank, was most successful at Burmantofts, Leeds, and not injurious to the health of the people. The case for the opposition was that the destructor was injurious to the public health, it was altogether too expensive and unnecessary, and the system which ought to be adopted was the waste water system. Dr. Livy was called in support of this, and he instanced the case of such places as Liverpool, Birmingham, and London, the last-named the healthiest city in the world, all of which had adopted the waste water system.

THE NEW "CHAMPION" VACUUM PUMP.

A REALLY good and efficient vacuum pump for the laboratory, the lecture room, and for many trade purposes has been much wanted for a considerable time, as all pumps and apparatus hitherto made for exhausting air have been inefficient, or very slow and troublesome to use.

Mechanical air pumps have always required very tight-fitting pistons to get them anything like air-tight, and with the very best fitting there was always some little clearance between the piston and delivery valve, consequently the pump could never be absolutely emptied of air. Then again, if the pumps were out of use for a week or two, the piston and valves would dry up and corrode, causing leakage, or the piston would soon become worn and require re-adjustment.

Mercury pumps can be made to produce a practically perfect vacuum, but they are necessarily very slow in action and soon fail to work efficiently if they are not frequently cleaned out and the mercury re-distilled, besides which the vapour of mercury has to be reckoned with.



The "Champion" vacuum pumps are extremely simple, frictionless, and self-adjusting, so that the piston, &c., will last an indefinite time. They are absolutely air-tight, and there is no clearance space whatever, and whether worked continuously or left to stand for a length of time, they cannot get out of order. They are very rapid in action, as every stroke exhausts and delivers absolutely one cylinder full of air, however slowly it is worked.

The single pumps will produce a vacuum sufficient to evaporate water at 10° to 20° below zero, F., and the double pump working in series will produce a vacuum equal to that obtained by the Sprengel pump. The No. "O" size, which we illustrate, is a single pump fitted with 7 in. plate for general experiments, and the No. 1's are made single or double with oiled sealed unions for connecting suction pipe to any apparatus for special experiments of demonstration or research.

The pumps can be made up to any size for exhausting incandescent lamp globes, barometers, &c., for trade purposes.

These pumps have the additional merit of being cheaper than the ordinary pumps. The sole makers are the Pulsometer Engineering Company, Limited, of Nine Elms, London, S.W. They can also be obtained from the principal philosophical instrument makers.

TREATING TURPENTINE STILL WASTE.

MR. C. B. WARRAND has called the attention of the turpentine operators to the waste of the turpentine distilleries, which is commonly called turpentine dross. He says (according to the *Oil, Paint, and Drug Reporter*) that this dross consists of about 80 per cent. of resin; the rest is cotton chips and pipe straw, all heavily impregnated with resin.

One ton of resin will easily yield 1,000 to 1,200 pounds of lampblack, with a good furnace and properly constructed house. If the arrangements of the lampblack house are not properly constructed, not more than half of this yield will be obtained, and the quality of the lampblack will be inferior, as the slower the resin or dross is burned the better the quality of the lampblack and the larger the yield. There is nothing in resin to give the lampblack a taint, or injure its black colour; hence, with proper care, an excellent article of great purity ought to be the result.

I have had many inquiries from turpentine operators, who wished to manufacture lampblack; the only drawback seemed to be to find a

market for the same. I have taken much pains, during my stay in New York, to ascertain if there was a demand for lampblack, what the prices were, the best mode of shipping and packing the same; all of which will, no doubt, be of interest.

Lampblack is used in large quantities by paint manufacturers. One house alone stated to me that they used from 3,000 to 4,000 barrels a year. Manufacturers of printers' ink use enormous quantities; manufacturers of shoe blacking also use large quantities. A considerable amount of lampblack is used by rubber manufacturers. Fertiliser works, and many other industries, also use lampblack in limited quantities.

From what I have learned I am satisfied that all the lampblack that can be produced by the turpentine operators can be sold at fair and remunerative prices. The prices paid here will depend on the quality. Much depends also on the admixture of sand, dirt, and other foreign matter, which is liable to get mixed while the lampblack is being gathered and being packed for shipment. The usual mode of shipping lampblack is in barrels, each barrel holding from thirty to forty pounds.

However, the best and cheapest mode of shipping is to pack the lampblack in large burlap sacks, five or six bushels in a sack. This way is especially desirable if it is shipped by rail in box cars; the loss is then very insignificant. A car will hold from five to seven tons of lampblack packed in bags. The freight from an interior point of Georgia to New York will be from £10. to £15. per car load.

The prices that lampblack will bring will range from £6. to £12. per ton, if shipped in bags. If the lampblack is shipped in barrels it will bring from 2½ to 6 cents per pound, according to quality and purity; the freight on lampblack in barrels is, however, much higher.

The cost to produce lampblack is very small. The stiller and his assistants could easily attend to the lampblack house at odd times without any additional expense to the operator. The only expense would be the gathering, packing in bags, hauling to the depot, and loading on board of the cars, all of which will not exceed 13s. A ton of lampblack will net at least from £3. to £6., or from £20. to £40. per car load. Every still can easily produce from eight to ten car loads a year, out of material now utterly wasted or burned.

The expense of erecting a good lampblack house is not large. From £20. to £40. will be ample. It will pay for itself in less than a month.

EXPORTS OF PETROLEUM FROM U.S.A.

THE Chief of the Bureau of Statistics, Mr. S. G. Brock, gives the exports of petroleum and petroleum products from the United States for the month of May, 1893, and during the eleven months ending May 31st, 1893, as follows:—The total value of the shipments for May was £751,629. as against £634,385. in May, 1892; and for the eleven months ending May 31st, 1893, £7,522,318., as opposed to £8,143,648. for same period ending May 31st, 1892. The shipments were as follows:—

CRUDE PETROLEUM.		Gallons.
Total for May, 1893	10,852,302	
" " 1892	2,265,788	
Total for 11 months ending May 31st, 1893 ..	103,947,298	
" " " 1892 ..	91,971,974	
NAPHTHAS.		
Total for May, 1893	1,604,045	
" " 1892	638,524	
Total for 11 months ending May 31st, 1893 ..	16,493,597	
" " " 1892 ..	11,944,762	
ILLUMINATING.		
Total for May, 1893	62,749,692	
" " 1892	48,363,364	
Total for 11 months ending May 31st, 1893 ..	562,770,014	
" " " 1892 ..	510,658,295	
LUBRICATING.		
Total for May, 1893	2,764,980	
" " 1892	2,726,444	
Total for 11 months ending May 31st, 1893 ..	30,285,540	
" " " 1892 ..	32,152,019	
RESIDUUM.		
Total for May, 1893	80,262	
" " 1892	3,654	
Total for 11 months ending May 31st, 1893 ..	360,864	
" " " 1892 ..	430,710	

THE GAS SUPPLY OF LONDON.

THE quality of the gas supplied to the City of London for the week ending July 29th, 1893, was fairly good. According to the report of Mr. W. J. Dibdin, chemist and superintendent gas examiner to the London County Council, the tests made at the various testing stations showed four deficiencies in illuminating power, two against the South Metropolitan Gas Co. and two against the Gas Light and Coke Co.. The following figures have been prepared from the report, and show the average composition of the gas calculated on the mean test:—

Company.	No. of districts tested.	Illuminating power (in stand. sperm candles). Mean average.	Sulphur. Grains in 100 cb. ft. Mean average.	Ammonia. Grains in 100 cb. ft. Mean average.	Sulphuretted hydrogen.
Gas Light and Coke Co.	14	16'36	9 61	0'41	Nil.
South Metropolitan Gas Co.....	6	16'43	10'73	0'71	Nil.
Commercial Gas Co. ..	2	16'40	5'85	0'35	Nil.

The standard gas supplied by these companies should have an illuminating power of 16 sperm candles, and contain not more than 22 grains of sulphur and 4 grains of ammonia per 100 cub. ft. of gas, on an average of three days, with a pressure of one inch between sunset and midnight, and six-tenths of an inch between midnight and sunset.

The World's Columbian Exposition.

ENGLISH INDUSTRIES AT CHICAGO.

(Specially Communicated.)

GALLOWAY'S LIMITED, MANCHESTER.

THIS firm has supplied to the order of the British Royal Commissioners, one of their patent superposed compound engines, for the purpose of driving the British exhibits. The accompanying illustration will show the general design of the engine which weighs over fifty tons, and the following dimensions and details of the principal parts will no doubt be interesting to our readers:—

High-pressure cylinder	17 inches diameter.
Low " "	30 " "
Stroke of both pistons	3 feet 9 inches.
Boiler pressure	100 lbs.
Revolutions per minute	70.
Indicated horse power	300.
Range of cut-off	0 to 66 per cent.
Crank shaft bearings	12 inches diameter.
Crank pin " "	20 and 21 inches long.
" " " "	7 inches diameter.
" " " "	10 " long.
Piston rods	3½ inches diameter.
Air pump	10 " "
" " " "	3 feet 9 inches stroke.
Air pump rod	3 inches diameter.
Steam pipe	6 " "
Injection pipe	5 " "
Overflow " "	9 " "
Fly wheel	23 feet "
" " " "	21¼ tons weight.
Ropes	12.
Diameter of ropes	1¾ inches.

The framing consists of a strong cast iron bed plate, constructed on the cellular or box pattern, truly planed and surfaced on the upper side for receiving steam cylinders. The plummer block for the crank shaft is cast on the bed and planed out to receive the gun-metal steps, which have ample wearing surfaces, and are divided in four parts made adjustable for taking up the wear. The cylinders are two in number. The high pressure cylinder has a bore of 17 inches, and is placed over the low pressure or condensing cylinder, which has a bore of 30 inches. Both are prepared for a length of stroke of three feet nine inches, the low pressure cylinder being securely bolted upon the before-mentioned bed plate. This superposed arrangement has the great advantage of reducing to a minimum the distance traversed by the steam between the high and low pressure cylinders. The front cylinder ends are cast in and provided with small covers having suitable stuffing boxes and glands. The back covers are turned and polished and provided with the necessary bolts; that on the low pressure cylinder has a stuffing

box and gland for continuation of piston rod to work air pump. Cocks or valves are provided for allowing the free escape of any water from the cylinders. The cylinders are fitted with indicator cocks.

A steam stop valve is attached to the valve chest, and provision made for admitting high pressure steam into low pressure valve chest for readiness of starting. The distribution of steam is effected by means of short slide valves, that of the high pressure cylinder being provided with a multiple-ported, or gridiron expansion valve working on the back of the main slide. The expansion valve is operated by means of a curved slotted link in connection with the improved expansion motion patented by Messrs. Galloway in 1890, for allowing the admission of steam at full pressure without the intervention of a throttle valve, and with a quick cut-off at any point from 0 to 66 per cent. of the stroke of piston.

The governor is driven by gearing, and is of the improved "Parabolic" type for obtaining great sensibility and steadiness of turning, and connected directly to the rod of the expansion slide valve.

The cylinders are provided with metallic pistons fitted with elastic self-adjusting steel coil springs. The piston rods are of mild steel secured to the pistons by suitable cotters. The cross-heads are of wrought iron, fitted with cast iron shoes, forming slide blocks made

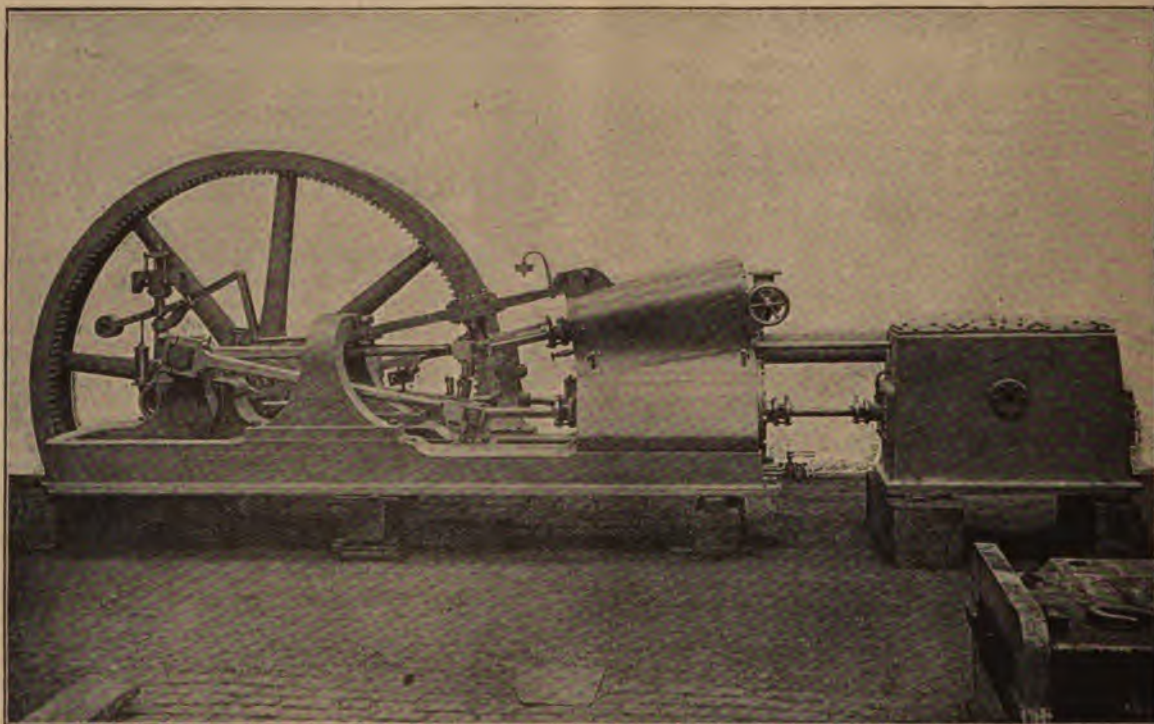
The lubricating apparatus includes sight feed lubricators for the cylinders, which are covered with sheet iron lagging. Barring gear has been supplied on Galloway's patent principle, either turning by hand, or auxiliary steam engine. The working principle is that in starting, the gear turns the engine until the engine moves faster than the gear, when the barring pinion automatically disengages itself.

Parliamentary Tottings.

UNHEALTHY OCCUPATIONS IN CHEMICAL WORKS.

IN the House of Commons on Friday last week Mr. J. H. Lewis asked the Home Secretary whether a Departmental Committee had been appointed to consider the conditions under which chemical workers carried on their employment, and if so whether he would state the terms of reference and when the Committee might be expected to present their report.

Mr. Channing also asked whether the right hon. gentleman could state what provision had been made for a Departmental Committee to



adjustable for taking up the wear. These slide blocks have large wearing surfaces; that for the high pressure cylinder working on a steel slide bar which also forms a stay between cylinder and framing, that for the low pressure on a slide provided and recessed into the bed plate. The connecting rods are of wrought iron and attached to cross-heads by suitable straps, and fitted with gun metal bearings, kept in position by gibs and cotters with screw adjustments. The connecting rod ends attached to the crank pin are also provided with gun metal bearings, and secured by wrought iron caps fitted with turned bolts and adjustable nuts.

The crank shaft is of mild steel, with wrought iron crank, fitted with crank pin, having ample wearing surface, a plumber block for carrying the outer end of the crank shaft is also provided.

The fly wheel is 23 feet diameter, grooved for twelve $1\frac{3}{4}$ inch ropes, provided by Messrs. Hanson, Scott and Co., of Stockport.

The air pump and condenser is placed in the rear of the engine. The air pump is horizontal, double acting, and worked directly from the piston rod of low pressure cylinder; it is fitted with removable working barrel and suitable piston with gun metal wearing parts and the best packing. The valves are of indiarubber, fitted with necessary guards. Doors are provided for obtaining easy access to the whole of the valves. The condenser is fitted with polished brass injector cock and handle, and is connected to the low pressure cylinder by the exhaust pipe and secured by a longitudinal stay.

inquire into the dangerous, unhealthy, and injurious occupations at white lead and pottery works.

Mr. Asquith: Yes, sir; it is the fact that such a Committee has been appointed. The terms of reference require the Committee to deal with the matter both generally and, in the case of alkali works and the manufacture of bichromate and chromium compounds, with particular reference to the following points:—1. How far these manufactures, as at present carried on, injuriously effect the health of the work-people, and how far the injurious effects depend upon the age and sex of the operatives. 2. What means can be adopted to abate the injurious effects of the manufactures. 3. What special regulations should be adopted to protect vats and other dangerous places and utensils used in the manufacture. As regards the date when the Committee may be expected to present their report, I can only say that the field of the inquiry is an extensive one. Much valuable information has been obtained at Widnes and St. Helens, but the Committee still propose to visit such important centres as Flintshire, Glasgow, Northwich, and Newcastle; and, therefore, I do not think their report can reasonably be expected till next month. With regard to the other question, a Committee has been appointed, with a somewhat similar reference to inquire into the white lead and pottery industry. The Pottery Committee has reported, and the White Lead Committee will, I hope, report very shortly.

FERTILIZERS AND FEEDING STUFFS.

The bill brought in by the Minister for Agriculture (Mr. Gardner) to amend the law on agricultural fertilizers and feeding stuffs was considered by the House of Commons Standing Committee on Trade on Tuesday last, Sir J. Gorst in the chair. At the instance of Mr. Gardner, prompted by Mr. Channing, it was agreed that every seller of a soil fertilizer manufactured in the United Kingdom or imported from abroad should not only, as the Bill provided, give to the buyer an invoice stating the proportions of nitrogen, phosphates, and potash, if any, but stating also the name of the article and whether artificially compounded or not. It is intended that the invoice shall have the effect of a warranty. Mr. Alexander Cross, for the sake of small and poor dealers, proposed that these requirements should only apply to sales of upwards of half a ton.—Sir M. Hicks-Beach hoped the Committee would not listen to this suggestion. Small purchasers needed protection more than large ones.—The amendment was rejected. The second clause provides that the sale of an agricultural feeding stuff under any name or description shall imply a warranty that the product contains nothing but the ingredients suggested by the name or description. This was not enough for Mr. Channing, who asked the Committee to declare that a precise and detailed statement of the ingredients must be given with every sale. The Committee by 16 votes to three refused—figures which indicated that with the chairman just a quorum was present. Mr. Channing moved that any statement by the seller as to the percentages of nutritive and other ingredients in a food for cattle, whether set forth in invoice, circular, or any advertisement, should have the effect of a warranty. Mr. A. Cross protested against the amendment as likely to kill the trade in imported feeding stuffs. It was, however, adopted. A sub-section requiring that "oil cake" should be composed of linseed only, unless the contrary was stated or might be inferred at the time of sale, was omitted. Clause 5, which gave to any dealer convicted under the bill right of action against the original vendor of the condemned fertilizer or feeding stuff, was struck out; and so was the next clause, which gave to the dealer in case of civil proceedings the right to set against the claim made against him the actual value of the goods he had supplied. This section, however, was not omitted without a division. It found nine supporters against ten opponents. The Committee, by special permission of the House, were at work from twelve o'clock till five, two hours longer than usual,

ing the boys, but only three bottles containing acids, and one with phosphorus were placed by him in a locked cupboard in the basement of the house, the empty bottles being placed in the conservatory. The key of the cupboard was kept in the kitchen. The boys had no right in the kitchen. He never knew the phosphorus was in the conservatory. Some of the bottles in the conservatory were the empty or nearly exhausted bottles which had contained chemicals. He knew of no bottle containing arsenic or green crystals, as alleged by a boy, one of the plaintiff's witnesses. The boys had to ask permission to go into the conservatory, but it was readily granted.

Cross-examined.—It might have been two or three months after the accident that he went to the cupboard and found the three bottles of strong acid, but the phosphorus was gone. Other witnesses corroborated.

Mr. MURPHY submitted there was no evidence of negligence on the part of the defendant. But even assuming there was, the proximate cause of the accident was the only one which could be looked at, and that was the act of Szczepanska.

Mr. Justice CAVE said the case must go to the jury. What was negligence was a question of degree—e.g., to leave a knife about where a child of four could get at it would amount to negligence, but it would not if the boys at 18 had access to it. Again, there were some things that were necessary to leave about though they were dangerous to a certain extent, but it was different if dangerous articles were kept which were not necessary. He could not understand how the defendant, having boys of varying ages under his care, should have kept the acids, having no further use for them after the chemical lectures were abandoned, as they were of trifling value; and, again, why, having put them in the cupboard, the key should be kept in the kitchen. It was beyond doubt that somehow the phosphorus had got among the dirty bottles in the conservatory. He left the following questions to the jury, who answered them as appears below:—(1) Was the defendant negligent in dealing with the phosphorus or not?—He was. (2) If so, did his negligence contribute to the injury?—Yes. Damages £75. Was the plaintiff, Mr. Williams, aware that if he removed his sons without notice he would have to make an equivalent payment?—Yes. What would be an equivalent payment?—£30.

Judgment in accordance with the findings of the jury, stay granted pending an appeal.

CHANCERY DIVISION.

(Before Mr. Justice Vaughan Williams, sitting as an Additional Judge of the Chancery Division.)

IN RE GENERAL PHOSPHATE COMPANY (LIMITED).

THIS was a shareholder's petition for a winding-up order.

Mr. Byrne, Q.C., and Mr. Bramwell Davis were for the petitioner; Mr. Farwell, Q.C., and Mr. Theobald for debenture holders supporting the petition; Mr. Buckley, Q.C., and Mr. Grosvenor Woods for the company; and Mr. Dunham, Mr. Hansell, and Mr. Carnelley for other parties.

Mr. Justice Vaughan Williams said he felt he ought to make an order to wind up the company, on the ground that it was just and equitable to do so. The only allegation in the petition that came to anything was that the properties held by the company could not be worked at a profit, which, with other facts stated, amounted to an allegation that the substratum of the company was gone. Another statement—that, having regard to the frauds alleged to have been committed in the promotion and formation of the company, an investigation into its affairs was necessary—would formerly have been an insufficient ground, because, on the authority of "*In re Haven Gold Mining Company*" (L.R. 20, Chan. Div., 151), a majority of the shareholders could have waived the fraud. But since the Act of 1890 it was by no means so clear that the majority could compel the minority to forego their statutory right of having an investigation under section 8 of the Act. His Lordship, however, was going to base his decision on the fact that the substratum of the company had gone. A committee of the shareholders had arrived at the conclusion that the company could not possibly go on unless a certain amount of money was found by the directors, which would not be found by them. A meeting of shareholders had certainly voted against a compulsory winding-up, but they had not voted for a continuance of the business. His Lordship also said that he was not influenced by the support of the debenture holders to a petition by shareholders for the winding-up of a company which was not alleged to be insolvent.

WEST RIDING ASSIZES.

(Before Chief Justice Coleridge and a Special Jury.)

REICHE v. STOTT.

At Leeds, on Monday last, Mr. Reiche of the firm of Reiche & Co., brought an action for damages for breach of contract against Mr. Stott, cotton manufacturer, of Oldham.

Legal Intelligence.

HIGH COURT OF JUSTICE.

QUEEN'S BENCH DIVISION.

(Before Mr. Justice Cave, and a Special Jury.)

WILLIAMS v. EADY.

This was a claim for damages for injuries to the plaintiff, a school-boy, caused by the alleged negligence of the defendant, a school-master, in leaving phosphorus about.

Mr. KEMR, in opening the plaintiff's case, said the defendant, Mr. Eady, was the proprietor of a school at Kenley, Surrey, and the plaintiff and two brothers were placed at his school to be boarded and educated. There was at the school a conservatory, in which were kept cricketing things, etc., and, among a lot of bottles, one containing some phosphorus, and to this conservatory the boys had access, though the defendant said not without special leave. On April 11th, 1892, a boy named Szczepanska took the bottle containing the phosphorus, and, after putting a lighted match in it, shook the bottle up and an explosion followed, injuring and burning the plaintiff, who was passing by, in his face and hand. The law required persons having dangerous substances to keep them safe; and if he, having charge of boys, left them about so that mischievous boys could get at them he was liable if damage resulted ("*Dixon v. Bell*," 5 M. and S., 198). There was a counter-claim for school charges for the plaintiff and his brothers and the doctor's bill, which the defendant had paid, and also for removing the boys without a term's notice.

The plaintiff, his father, and brother, and other witnesses gave evidence in support of counsel's opening statements.

Edgar Szczepanska said he got the phosphorus from off the table in the conservatory the day before the accident. He put a match into the bottle and shook it up, and it went all over the place and unfortunately hit the plaintiff.

Cross examined.—He had not seen the phosphorus until the day before.

Mr. MURPHY having opened the defendant's case, called his client. Mr. W. H. Eady, M.A., the defendant, said he had been a school-master for some years, and moved to Kenley in 1891. He sent a prospectus to the plaintiff or his wife, in which there was a stipulation that a term's notice should be given or an equivalent payment made. Before he had gone to Kenley the chemicals had been used for teach-

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Plaintiff is a merchant doing a continental trade in cotton waste, etc., and the transaction about which the dispute arose was as to the non-delivery of ten tons of cotton waste in July, last year. Mr. Job Booth, a buyer for the plaintiff, went over to Oldham and obtained a sample of "N" milled willowed blowings from the defendant. The price was 1½d. per lb. Plaintiff sent a sample to an agent in Germany, and got an order by telegram for 200 cwt. at 16½ marks per cwt. He wired to the defendant accepting ten tons at 1½d. per lb., immediate delivery, and received a reply that the offer was accepted. On the same evening the plaintiff received another telegram to the effect that there was some mistake. An action was brought against the plaintiff in Germany by the agent in question, and he had to pay damages amounting to £63. Before the case had been concluded a juror was withdrawn.

LIVERPOOL ASSIZES. NISI PRIUS COURT.

(Before Mr. Justice Kennedy and a special Jury.)

SAUSINENA v. HOUSTON.

This was an action which began on Friday, 4th instant, and in which Messrs. Sausinena, meat importers, of London and Liverpool, claimed from Messrs. Houston & Co., shipowners, of Liverpool, the sum of £13,085., loss on two cargoes of frozen mutton shipped by the defendants' two steamers. The first case taken was that of the Hippomenes, on board of which a cargo of mutton was shipped from the River Plate. It was stipulated that the temperature of the holds should be kept at 28 degrees F. "accidents, mishap, or breakdown beyond the owners' control not preventing." It was admitted that the temperature arose above this figure, but defendants said it arose from leakage of ammonia from the condenser of the refrigerating machinery, and occurred through no fault of theirs. Kilbourn's machine was used, and it was a new one, thoroughly overhauled before the voyage was commenced. The plaintiffs relied upon entries in the log with regard to the high temperature on the voyage, and asserted that the leakage took place from the nuts at the top of the condenser, owing to the use of white metal washers instead of specially prepared india-rubber washers. It was added that one charge of ammonia (100lb.) should have sufficed for one voyage, whereas eleven such charges were used on the voyage. This pointed to a defect in the machinery. The hearing of the evidence, principally that of engineering experts, occupied two days, and his Lordship summed up at great length. Several questions were put to the jury, who found (1) that the machinery as originally fixed in the Hippomenes, was proper refrigerating machinery; and (2) that the admitted failure of the defendants to keep the insulated chamber on the voyage at a temperature not exceeding 28 degrees Fahrenheit, was due to a cause beyond the owners' control. Judgment was deferred until the second case was heard. It was an action to recover £5,353. loss on a cargo jettisoned from the defendants' steamer Hildegarde on a voyage from Buenos Ayres to England. The refrigerating machinery upon the vessel was Hall's dry cold air apparatus. According to the contract, a temperature of 28 degrees Fahrenheit was to be maintained in the hold. Entries in the log showed that this temperature was not kept, and according to the plaintiff this arose through a defective valve, the consequence of the machinery being driven at too rapid a rate. The defendants relied on the defence that the machinery was in good working order, and if the temperature agreed upon was not maintained it was owing to an accident beyond the owners' control, and that according to the contract they were exempt from liability. The plaintiffs contended that the machine was an old one, and had been repaired several times, and that proper care had not been taken in conveying the cargo. In consequence of an accident to the connecting rod the proper temperature could not be maintained. Defendants' witnesses asserted that the accident in this case could not have been foreseen, but the jury found that the injury was not caused by an accident beyond the owners' control—in other words a verdict for the plaintiffs. Stay of execution was asked for on a point of law. His Lordship granted the application.

(Before Mr. Justice Lawrence without a Jury.)

CROPPER v. CORPORATION OF BURY AND TEMPEST.

On Monday last, this case was heard, in which a farmer, John Cropper (plaintiff), of Lower Clough Bottom, Newchurch, Rossendale, brought an action for damages against the Bury Corporation and Enoch Tempest, a contractor, for fouling a stream. On behalf of the plaintiff it was submitted that the Whitewell Brook, which ran through his farm, and was used for watering the cattle, was fouled owing to the negligence of the defendants who were erecting a water-works and reservoir near the brook, a short distance from the farm. By the Act of Parliament the defendants were pledged to take all reasonable precautions not to foul the stream, but notwithstanding this the water was rendered obnoxious by the introduction of lime and cement. Several of the plaintiff's cows that drank at the stream became ill, and later on

some of them died. In the long run plaintiff had practically to discontinue the rearing of cattle. When Mr. Cropper complained about the fouling of the stream in the first instance, some efforts were made by the defendants to mend matters, but the efforts were not successful. The plaintiff, his wife, and several other witnesses were called to speak to the loss sustained by the plaintiff owing to the fouling of this stream, and samples of the water were produced in court. On behalf of the defendant Tempest, Mr. Gully submitted that he had taken every reasonable and proper precaution to prevent the stream being fouled. The first complaint made by plaintiff was in 1892, and then he stated that he had suffered loss on the sale of cattle in 1891 owing to them having drunk obnoxious water. As a matter of fact at that time neither lime nor cement had been used at the works, and the only thing that could have happened was that the water had been muddy owing to digging operations. This water had been used by other farmers, and had caused no complaint. All the evidence, counsel contended, pointed to the fact that plaintiff had owing to his health become unfit, and indisposed, by reason of the state of agricultural matters, to go on with this business, and consequently he gave it up. There was, however, no shadow of reason for plaintiff having sold his stock on account of the alleged fouling of this brook. Mr. Sutton contended that the Corporation of Bury was in no way responsible, for they engaged Mr. Tempest to do this work.

The Corporation paid every attention to the suggestions of the plaintiff, engaged one of the most experienced firms of contractors to do a work which the Corporation could not perform with their own hands. Witnesses were then heard in support of the case for the defence, and samples of the water were put in as taken on behalf of the defendants. These samples were much clearer than those handed to his lordship by the plaintiff, and it was suggested by the defence that the samples shown by the plaintiff had been improperly or ignorantly taken. His Lordship said that if he believed one side a fouler stream never existed than this one, but if he believed the other side, a clearer and more beautiful stream was never seen. (Laughter.) He must therefore put at one side the scientific evidence and use his common sense in the matter. His Lordship gave judgment for the plaintiff for £120. and costs.

Reports of Companies.

DIVIDENDS.

PRICES PATENT CANDLE COMPANY, LIMITED.

The directors of this company recommend a dividend of 10s. per share, which will absorb £18,750.

THE SALT UNION.

The usual interim dividend on the preference shares, at the rate of 7%, is declared; but, in view of the coal strike, they do not consider it prudent to declare any interim dividend on the ordinary shares.

NEW TAMARUGAL NITRATE COMPANY, LIMITED.

A further dividend of 4% is proposed on the preference shares, making a total distribution of 8% for the year.

MESSRS. BRUNNER, MOND AND CO., LD., have declared a dividend of 100%. (See p. 101.)

Correspondence.

* * We do not hold ourselves responsible for the opinions expressed by our correspondents.

ANSWERS TO CORRESPONDENTS.

J. F.—We are unable to give further information at present.

W. C. H.—We trust they have been safely received.

W. P. AND CO.—No, it was correct as we stated.

W. H. S.—We shall be glad to be favoured with your reply.

J. AND W. W.—Yours duly to hand, for which we are obliged.

G. K.—They are made by a German firm, we believe. The bad ones greatly outnumber the good.

FOREIGN REMITTANCES.

Owing to the inconvenience created by the various ways in which foreign subscriptions are remitted, we respectfully beg to inform subscribers that a *Crossed MONEY ORDER* is the most satisfactory method of remitting, both for them and ourselves. In the case of a Money Order, a letter advising us of same should always be sent, otherwise, owing to post-office formalities, much delay in tracing and acknowledging foreign remittances is inevitably entailed in this country.

Trade Notes.

Messrs Brunner, Mond, and Company's Balance Sheet.—Messrs. Brunner, Mond, and Company, Limited, chemical manufacturers, Winnington, Northwich, have issued to their shareholders the half-yearly report, which shows a balance to the credit of profit and loss account on the working of the half-year ended on the 30th June, 1893, of £251,219. 7s. 10d., which, with the amount of £172,754. 13s. 10d. brought forward from the previous half-year, makes a total of £423,974. 1s. 8d. The directors propose to deal with the above balance as follows:—Dividend on the preference capital at 7 per cent. per annum, £15,323. 8s. 9d.; dividend on the ordinary capital at 100 per cent. per annum, £316,250; amount to be written off patents account, £2,500; balance to be carried forward, £89,900. 12s. 11d. Acting upon the special resolution passed in February last, the directors propose to offer to allot at par to both ordinary and preference shareholders a number of ordinary shares of the value of £10., of which £2. 10s. per share is to be paid to rank for dividend from 1st July, 1893. There will be issued to the shareholders dividend warrants for one-half of the dividend to be declared at the half-yearly meeting, and, with the consent of the shareholders, the other half will be applied in payment of £2. 10s. per share on the new issue.

THE SULPHUR DEPOSITS OF MILO.—The mineral resources of the Greek island of Milo are very important, and include excellent sulphur, which is obtained in powder and of which the quality is far superior to that derived from Sicily (roll sulphur), which is imported into Greece. All the Milo sulphur is sent to the Peloponnesus, where it is used chiefly in the treatment of the vines. The annual output is 2,000 tons.

PETROLEUM FIRES.—Two serious fires have occurred recently at the works of the Standard Oil Co., U.S.A. Two tanks of oil exploded at their works at Whiting, Ind., 200,000 gallons of refined oil being lost, and much damage done by the fire which occurred subsequently; while a serious conflagration broke out, a day or so later, at the paraffin works of this company at Cleveland. About £4,000. damage was done.

CHANGE OF ADDRESS.—We learn that the Lydbrook Chemical Company have changed their address to the Lydbrook Chemical Works, Lydbrook, nr. Ross, N.B., where they have a large stock of charcoal of all kinds for all purposes, wood naphtha, acetate of lime, etc. They have also leased the Oakwood Charcoal Works near Park End Station, where 20 tons of charcoal can be manufactured weekly.

PRIZES FOR TECHNICAL RESEARCH.—The society for the encouragement of French industries offers the following prizes:—For a published work of use to the chemical or metal trade £60., to be awarded in 1894; a prize of £60. for an experimental study of the physical and mechanical qualities of one or several metals or alloys, chosen from those in ordinary use, which will be awarded in 1894. A prize of £60. for a scientific examination of any industrial process of which the theory remains imperfectly known; this prize will be awarded in 1896.

ELECTROLYTIC WHITE LEAD.—In the newest German process for the manufacture of white lead by electrolysis, lead anodes, 3 millimetres in thickness, are employed in electrolyzing the solution, the latter containing 300 cubic centimetres of nitric acid in 2,000 cubic centimetres of water; the lead salt formed when the current passes is precipitated as true white lead by means of a stream of carbonic acid gas, which is passed through the solution. In this process, any silver which the lead may contain is deposited on the cathodes, and can be recovered in a tolerable state of purity.

ELECTROLYTIC PAINTING.—Hitherto, if copper or other metal had to be deposited electrically, a bath of the metal in solution was needed. Now, however, according to *Electricity* a ship's hull can be plated as easily as a spoon or teapot. Instead of a bath, insoluble salts, ground to a fine powder and mixed with water, are used. This mixture is painted on the metal to be plated by a fine wire brush, to which one pole of a dynamo conductor is attached, the other pole being connected with a plate. Not only pure metal but all sorts of alloys it is stated can be used.

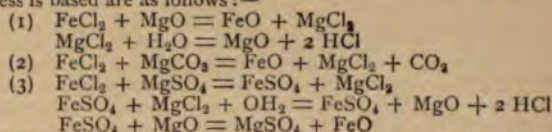
SALE OF FERTILISERS IN U.S.A.—The Commissioners of Agriculture of the Southern States, in Session at Atlanta, Ga., have decided to control the sale of commercial fertilisers in that district, and have passed a resolution to the effect that, "In the opinion of this Conference, a uniform system of control and regulation of the manufacture and sale of commercial fertilisers in the Southern States is important to both parties interested in the use of fertilisers, equally to the manufacturer and dealer as to the planter and farmer; therefore be it." The Commissioner of Agriculture for Georgia (Hon. R. T. Nesbitt) has also been deputed to draft a Bill, based upon the principles of the Georgia Statute.

THE EFFICACY OF BOILER COVERINGS.—Some experiments on the influence of boiler coverings on the consumption of fuel have just been concluded on the railways of south-west Russia. It was found that cooling was more rapid while working than when stationary, save when a double covering of felt was used. The heat lost in twenty-four hours by a boiler with 90 square metres of surface containing water at a temperature of 144°, and exposed to an exterior temperature of 8.5°, corresponded to 133 kilos. of coal if the boiler was uncovered, to 153 kilos. if there was a thin metal covering, to 130 kilos. if there was a double felt covering, and to 103 kilos. in the case of a cork covering. For an average daily consumption of 1,164 kilos., the cooling of the boiler represented about 24 per cent. and 8.1 per cent. of the consumption of coal.

AN OLIVE OIL CONTRACT.—This case was heard recently before Commissioner Kerr, in the City of London Court. The plaintiffs, Messrs. Marshall & French, brokers, 37, Mincing-lane, E.C., sought to recover from the defendants, Messrs. Blumann & Stern (Limited), Russian-oil merchants, 43, London Wall, E.C., the sum of £36 5s. 11d. for eight barrels of Saffi olive oil purchased upon their order. Considerable evidence was given as to the prevailing customs of the olive oil market, much of which seemed conflicting. It was argued for the defendants that in the first case the plaintiffs could not sue because they were brokers, and secondly that no tender of the delivery order was made until after the time of the prompt had expired, which was fourteen days. The delivery-order ought to be tendered within the fourteen days, and in this case the defendants had no delivery-order tendered during that time, or, indeed, at all. The bargain, if there ever was one, was at an end, therefore; and the plaintiffs had no right of action. In the end Commissioner Kerr said he must find a verdict for the defendants, with costs; but the plaintiffs would have leave to retry the case before a jury if they so wished.

THE BORAX TRADE OF NORTH ITALY.—Boracic acid in its native form exists in large quantities at several places in the provinces of Pisa and Grosseto, in Tuscany, the works of Count de Larderel at Monte Cerboli, which produce annually about 40,000 cwt., being especially well known. According to an Italian statistical work quoted by the British Consul at Leghorn in his last report, there are 12 boracic acid establishments in the two provinces, with an annual production of over 60,000 cwt. All the boracic acid works of Tuscany are in the hands of four different proprietors, who do not act as direct exporters, but sell to merchants in Leghorn. In spite of the claims of other antiseptics, the demand for the Tuscan boracic acid continues a large one. The shipments to England are always considerable. Of a total export for Leghorn of 38,283 cwt. in 1891, 27,807 cwt. came to the United Kingdom, almost the whole of the remainder being taken by the United States, Russia, Belgium, and France. Borax having boracic acid as its source is also produced in considerable quantities in Tuscany. The export of borax and borate of soda in 1892 was 14,323 cwt.

TREATING GALVANIZERS' WASTE LIQUORS.—Several patents have been taken out during the last few years with a view to accomplishing this end. Among the many the following is the one which is intended to obtain the chlorine of the pickle as hydrochloric acid and the iron as ferric oxide. The solution is first neutralised with iron, scrap and magnesia, prior to evaporation. After evaporation magnesium carbonate and sulphate are added to the mass of ferrous chloride and the mixture heated to redness in clay retorts connected with a condensing battery, which condenses the hydrochloric acid gas. The reactions on which the process is based are as follows:—



During the process steam is passed through the retorts to hasten the evolution of the hydrochloric acid, after the cessation of which hot air is passed through the retorts to form ferric oxide.

THE ELECTRO-CYANIDE GOLD PROCESS.—Among the many processes devised for extracting gold from its ores, the latest is a combination of the cyanide and electrolytical separation processes, which is the outcome of the work of Mr. J. B. Hannay. The process is carried out in a circular vat, around the sides of which a ring, constituting the positive pole, and made of a mixture of pitch, plumbago, and powdered resin, is placed. A rotating screw keeps the fluid sludge of ground ore and solvent solution of potassium cyanide in a state of agitation, effecting a perfect mixture, the bottom of the vat being filled with a bath of mercury, which constitutes the negative pole. On starting the screw the mixture circulates down the centre of the vat and impinges gently upon the surface of the mercury. It then travels up the sides of the vat, which are conical, and back down to the centre, to be again driven into intimate contact with the mercury. When the operation is completed, which takes from two to six hours, the sludge

is filtered and the cyanide solution recovered for future use and the gold amalgam treated in the usual way. The advantages claimed for the process are that the gold is extracted without calcining the ore, or any other treatment save crushing, and that the same chemicals are used over and over again.

Market Reports.

TAR AND AMMONIA PRODUCTS.

There is nothing fresh to report in the tar products market. Benzol is extremely dull, and 1s. 4d. is the utmost limit, London, for 90's, and about a penny less in country, while 50/90's have approximately the same value. Solvent remains inanimate, and even carbolic acid is now without life, the Continental demand not coming up to expectations. Anthracene is as already quoted.

The sulphate of ammonia market is still increasing in firmness, and £13. 15s. has been paid at all ports, still higher prices being now demanded for spot parcels, which are exceedingly scarce. To-day sellers are asking £13. 17s. 6d. at all ports except Leith, which now stands at £14. It is, of course, impossible to say whether any quantity of sulphate is held in second-hands, as no indication of this will be seen till after September. Anyhow, our motto is not "Beware of the Dog," but "Beware of the Bull."

REPORT ON MANURE MATERIAL.

During the week business has been of a holiday character, and prices remain for the most part without alteration.

There are sellers of 75/80% Florida phosphate rock at 8½d. per unit, in cargoes c.i.f. to United Kingdom, but for the Continent 8½d. per unit is now asked. For Peace River the price remains 7d., and for hot-air-dried South Carolina River rock 6½d. per unit.

We do not hear of any further business in River Plate bones, but there would probably be buyers of cargoes at £4. 10s., delivered United Kingdom ports. Crushed Kurrachee bones for autumn shipment are firmly held for £4. 10s. per ton, ex quay Liverpool, and £4. 15s. now required for Bombay bone meal. The nearest value of River Plate bone ash is £3. 10s., on 70% nett, Hamburg terms. Good charring bones are in request at £4. 5s., ex quay Liverpool, and common grinders £4. to £4. 2s. 6d.

Nitrate of soda is unchanged, though, owing to arrivals, spot price Liverpool is now down to 9s. 6d. per cwt. Due cargoes are worth 8s. 10½d. to 9s., May-June sailings 9s. to 9s. 1½d., and September-November 9s. 3d. to 9s. 4½d.

In miscellaneous nitrogenous material there is nothing to report.

MISCELLANEOUS CHEMICAL MARKET.

There is a strong demand for all products of the alkali trade, in anticipation of the enforced stoppage of output. Full market rates are readily paid by those who are anxious to obtain supplies, and though there has been no nominal advance so far, it is quite likely the stringency of fuel supplies will be felt within the coming week, and some advance in prices may be expected as a consequence. In the meantime prices remain as for some time past for spot delivery, viz.:—Bleaching powders, £8, for makers' works; and £8. 10s., f.o.b. Liverpool, &c. Caustic soda, f.o.b. Tyne, 77%, £11.; f.o.b. Liverpool, 74%, £10. 10s.; 70%, £9. 10s.; 60%, £8. 10s.; cream, 60%, £8. 5s., 10 ton lots and upwards. The supply of soda ash is fairly abundant to meet all requirements, and price is nominally as last reported, viz.:—58%, 1½d. to 1¾d. at makers' works. Chlorates of potash and soda are unchanged. For recovered sulphur the demand is still slack, and price is without alteration. Soda crystals, £2. 17s. 6d. per ton. Sulphate of copper is in poor request, and price rather easier at £15. 5s. to £15. 10s., f.o.b. In potash, caustic and carbonate, trade is still quiet, and prices have undergone no recent change. Acetate of soda steady, at £16. c.i.f. Acetates of lime continue somewhat dull at former prices, and there is no business of importance passing. Nitrate of soda quiet, and price is nominally 9s. 9d. for spot delivery. Nitrate of potash (refined) rather scarce, and price has advanced 10s. per ton. Ammonia salts are in good request. Muriate (grey) is a little more plentiful, but price

remains firm at £22. 10s. to £23. per ton. White powdered arsenic continues in good demand, and as stocks are light, higher prices are not improbable; price £13. 15s. at Garston. Borax is in better supply than demand. Prices to-day range from £27. 10s. to £29, according to quality. Oxalic acid weak at 3d. per lb. Yellow prussiate of potash quiet at 9d. Nitrite of soda steady at £29. per ton.

LIVERPOOL OIL AND COLOUR MARKET.

WEDNESDAY.

OILS.—Palm oil continues dull, and prices are not easily quoted. To-day's value is about £23. 15s. per ton for Lagos; olive rules steady without material alteration in prices quoted last week. Linseed is not commanding high prices, but seems steady at present position, which, for Liverpool makes in export casks is 22s. to 22s. 6d. per cwt. Rape, nominal. Prices for cottonseed, Liverpool refined, are still easy, quotations to-day being 21s. 9d. to 23s. 6d. per cwt. Castor oil is steady, good seconds Calcutta is worth 2½d. to 2¾d. per lb. First pressure French 2½d. to 2¾d. per lb. There is little doing in tallow, which is steady in price however. Resin with common at 3s. 9d. per cwt. is steady, but demand in all grades is limited. Spirits of turpentine are in moderate demand at 21s. 6d. per cwt. Petroleum is unaltered as regards position, and quotations remain 4¾d. to 5½d. for American, and 4d. per gallon for Russian refined.

COLOURS are better. Ochres: Oxfordshire, common, £10. medium, £12., best, £15.; Derbyshire, common, 40s.; medium, 50s., best, 60s.; Welsh, best, 70s., seconds, 50s., and common, 18s.; Irish, Devonshire, 40s. to 45s.; French, J.C., 55s. to 60s.; M.C., 65s. to 67s. 6d. Umber: Turkish quiet; Devonshire, 50s. to 55s. White lead, red lead, and oxide of zinc unchanged. Venetian red, £6. 10s. to £10. Cobalt: Prepared oxide, 9s. 9d.; black, 9s.; blue, 6s. Zaffres: No. 1, 3s. 6d.; No. 2, 2s. 6d. Oxide of iron: Common, £6.; medium, £10.; finest, £20. Zinc oxide, £23. to £25.

THE METAL MARKETS.

LONDON, WEDNESDAY.—Pig iron inactive. Scotch warrants closed at 42s. 3½d. cash, Middlesbrough 35s. 3½d. cash, and hematite 45s. 3d. Copper, dull: Chili bars, G.O.B.'s and G.M.B.'s closed at £41. 5s. to £41. 12s. 6d. cash, and £41. 12s. 6d. to £42. three months. Tin, quiet: Straits closed at £81. 2s. 6d. to £81. 12s. 6d. cash, and £81. to £81. 10s. three months; Australian, £83. 10s.; English ingots, £86. 10s. to £87. Lead, easy: Spanish, £10.; English, £10. 2s. 6d. to £10. 5s. Silesian spelter: Ordinary, £17. 12s. 6d. Nickel, 1s. 8d. Antimony, £37. 10s. Quicksilver: First hands, £6. 5s.; second hands, £6. 4s. 6d. Copper shares, quiet: Cape, 1 to 1½. Copiapo, 1¼ to 1½. Libiola, 2¼ to 3. Mason and Barry, 1¾ to 1½. Rio Tinto, 1¾ to 1¾; Tharsis, 4¼ to 4½; Namaqua, ¾ to ¾.

WOLVERHAMPTON, WEDNESDAY.—The iron works are getting into operation again after the holidays, and it was reported at the market to-day that there is a good demand for most descriptions of manufactured iron. Execution of orders is, however, interfered with by the coal strike, and prices are very firm. Best bars remain at £7. 10s., and merchant sorts £6. to £6. 10s. Sheets, doubles, £7. 2s. 6d., and lattens £7. 15s. Common plates, £7. Boiler qualities, £8. to £9. Pig iron scarce and dear. Coal advancing; great demand.

GLASGOW, WEDNESDAY.—Market easier, with small business. Scotch done at 42s. 4d., and 42s. 3½d. cash, also at 42s. 6½d. and 42s. 6d. one month; closing with buyers at 42s. 3½d. cash, sellers ask 42s. 4d. Cleveland done at 35s. 4½d. and 35s. 4d. cash; closing with buyers at 35s. 3½d. cash, sellers ask 1d. more. Cumberland hematite closes with buyers at 45s. 2d. cash, and 45s. 4½d. one month, sellers ask 45s. 4d. cash, and 45s. 7d. one month. Middlesbrough hematite closes with buyers at 43s. 3d. cash, sellers ask 43s. 6d.

THE LIVERPOOL MINERAL MARKET.

The mineral market continues to improve. Manganese: The demand for good ore is very good, with better prices ruling for spot lots. Borate, 7d. per lb.; sulphate, £21. 10s.; oxalate, 1s. 6d. per lb.; chloride, £15., carbonate, £12. 10s., steady. Magnesite (raw lump) good demand; raw ground, £6. 10s., and calcined £12. 10s. Bauxite (Irish Hill brand): The demand for export continues very brisk at full figures; lump 20s., seconds 16s., thirds 12s. French chalk: In good demand at full figures. Barytes: Carbonate

is still scarce; nuts, 72s. 6d. to 85s.; finest white sulphate is in demand. "Angel White," No. 1, 70s.; No. 2, 60s. to 65s.; No. 3, 45s. Pumicestone quiet. Iron ore flat, Bilbao, Irish, and Cumberland slow. Santander and manganiferous are quiet. Emery-stone firm; No. 1 lump, £5. 10s. to £6.; smalls, £5. to £5. 10s. Fullers' earth: Best lump, 55s.; one impalpable ground, £7; "Emerald" ground, 80s. Scheelite, wolfram, tungstate of soda, and tungsten metal easier. Chrome ore: Good sales have been made this week at increased prices. Antimony ore easier, at £11. 10s., and metal £43. to £45. Asbestos firm. Potters' lead ore, smalls, £10. 10s. to £11. Calamine strontia sulphate (celestine) quiet. Limespar steady, especially for English manufactured; old G.G.B. brand in demand at 50s. (ground). Felspar quiet. Fluorspar: Best quality scarce. Ferromanganese slow. Plumbago: Spanish, £5.; best Ceylon lump at last quotations; Italian and Bohemian, £4. to £12. per ton; "Founders," £5. to £6.; Blackwell's "Mineraline," £10. French sand, 20s. to 22s. 6d. Ground mica, £45. to £50. China clay steady, common, 18s. 6d.; good medium, 22s. 6d. to 25s.; best, 30s. to 35s. (at Ramcorn). Bog ore (oxide of iron): finest quality 25s. to 30s.

TYNE CHEMICAL REPORT.

TUESDAY.

There is little or no alteration to report in the chemical trade, manufacturers being kept fairly busy with shipping orders. Stocks generally are low, particularly caustic and sulphur. Soda crystals scarce at £2. 12s. per ton locally. Bleach, £8. 5s. per ton. Sulphur, £4. 5s. per ton.

Bleaching powder, softs, £8. 5s. per ton nett; hards, £8. 10s. per ton; caustic soda, 76/77%, £11. per ton, 70%, £9. 10s. per ton; recovered sulphur, 2 cwt. bags, £4. 5s. per ton; soda ash, 48%, £4. per ton, 52%, £4. 7s. 6d. per ton, 56%, £4. 15s. per ton; alkali, 36%, £3. 15s. per ton; white alkali, 48%, £4. 15s. per ton, 50%, £5. per ton, 52%, £5. 5s. per ton; hyposulphite of soda, in 5-7 cwt. casks, £7. per ton, ditto, in 1 cwt. kegs, £7. 15s. per ton; silicate of soda, 75° Tw., £2. 15s. per ton, 100° Tw., £3. 10s. per ton, 140° Tw., £3. 17s. 6d. per ton; soda crystals, in casks, £2. 12s. per ton gross weight, in 2 cwt. bags, £2. 12s. per ton nett weight; chlorate of potash, 83½d. per lb. less 6%; pearl hardening, £3. per ton nett; pure white sulphate of alumina, £4. 2s. 6d. per ton; blanc fixe, £7. 10s. per ton; chloride of barium, £7. 10s. per ton; carbonate of alumina, £28. 15s. per ton nett; aluminate of soda, £33. 15s. per ton nett; in 5 ton lots, £28. 10s.; hydrate of barium, £10. per ton nett.

South Durham salt unaltered in price. Shipments steady.

Coals: Trade is steady, the bulk of the heavy production going under old contracts, only small lots having been sold at advanced prices. Best Northumbrian steam have found sale at 11s. to 12s. per ton. Gas coal in good demand. Bunker coal firm at 7s. 6d. to 8s. per ton. For coke there is a firm demand: price for shipment (new business) varying from 15s. to 16s. per ton. Since last week both the Northumberland and Durham miners have made application for an advance in wages, and the owners have intimated to the miners' representatives that they could not see their way to accede to the request, as the state of the trade would not justify it; they were, however, willing that the question should be referred to arbitration.

HULL PAINT, OIL, AND COLOUR REPORT.

TUESDAY.

OILS.—Many of the mill owners are fully prepared to stop running their mills rather than pay extreme prices for fuel. Such a step is to be deplored at this season of the year, for it is only by the exercise of extreme caution that business can be done to any advantage. In the face of these circumstances the markets are very quiet and depressed. Refined cotton oil being quoted 10s. per ton lower, and linseed oil being very quiet at about last week's rates. The exports of these oils for the week ending being:—Refined cotton oil 2,860 cwts, and linseed oil 1,980 cwts. The quotations being: linseed oil, 20s. 6d., naked, spot; month offers at 20s. 3d.; September-December quoted 18s. 9d., casks 17s. 6d., and barrels 22s. 6d. per ton extra, boiled and refined ditto 1s. to 2s. per cwt extra. Refined cotton oil closing steady at 20s., naked, spot; month worth 19s. 9d.; September-December, 19s. 3d. to 19s. 4½d.; November-April offers at 17s. 10½d. Refined rape a little firmer. Fish oils, sperm, unchanged. Coast cod oils, £17. 10s. to £20.; Newfoundland, £26. Herring oil, £16. 10s. per ton; sod oil, for carriers, etc., £15. to £17. per ton. Lubricating grease (equal to Stauffer's) from £16. per ton. Pine oil £7. per ton. Resin from £4. per ton. Petroleum jellies from 26s.

CAKES.—The advance in coals and the very deficient stocks of seed on the spot help to sustain prices, although the demand is quiet, owing to harvest operations. Prices being:—Linseed cakes, 95% purity, £8. 12s. 6d.; ordinary, £7. 5s. to £7. 10s.; Russians, £8. 10s.; Americans, £7. 15s. Cotton cakes: spot, £5. 5s. to £5. 7s. 6d. for best makes, with a firm market. November-March weak, £5. Round feed and oil cakes, £6. 15s. Rape cakes, £4.

PAINTS.—Nothing of importance interferes with business in these goods, the prices of which are:—White zinc oxide from £23. (a general impression appears to be abroad that the present is opportune for making purchases of this article). White and red leads unchanged. Venetian red, dry, £6. to £10. per ton. French ochre, 60s. per ton. Oxide of iron, dry, £9. to £18. per ton. Fine linseed oil putty, £6. per ton. Enamels from 4s. 9d. per dozen. Ready mixed paints, in tins, 1, 2, 4, 7, and 14 lbs, 28s. to 30s. per cwt. Lime blue from 16s. per cwt.

THE COPPER MARKET.

Messrs. Hetherington and Co., in their fortnightly report dated Liverpool, August 2nd, 1893, state:—Charters for the first half of July which were estimated as 1,000 tons, were subsequently advised as 1,400 tons; the quantity for the past fortnight not yet being to hand is estimated as 1,000 tons, making 2,400 tons for the month, and 12,500 tons since 31st December. Same time last year the quantity was 13,150 tons. Exchange 14¾d.

During the past fortnight about 6,000 tons of G.o.b.'s and G.m.b.'s were sold, highest quotations £42. 16s. 3d. cash and £43. 5s. three months on July 21st, and the lowest £41. 15s. and £42. 2s. 6d. respectively on July 31st, but sales were made even lower than these quotations, as £42 was accepted for a considerable quantity of three month's G.m.b.'s on the 31st ult., but the market improved yesterday to £42. cash and £42. 7s. 6d. three months, and we close to-day quiet at £41. 17s. 6d. and £42. 5s. respectively. We have to go back to the end of July, 1889, to find G.m.b.'s sold at £41. 10s. cash; three months were then selling at £1. less, and the visible supply was more than double the quantity than it is at the present time. The continued financial difficulties in America, and the uncertainty regarding the future of silver, keep prices down, but the turn must come, and when that does take place it will be all the stronger.

The Anaconda mine has closed part of its workings and discharged a great number of men, thus reducing the output by one half. The strike of the coal miners in Lancashire, Cheshire, and Yorkshire, causes smelters to be very prudent as regards purchasing furnace material for their works at present, as it is quite impossible to foresee how long the strike may last.

The total stocks in Liverpool, Swansea, London and Havre are 45,583 tons, against 45,753 tons on the 15th ult., showing an increase of 130 tons for the fortnight. The figures for the previous fortnight showed a decrease of 252 tons, thus making the decrease 122 tons for the month. The stocks include about 2,800 tons of copper sold, but not yet delivered to smelters. The visible supply for the fortnight is 50,566 tons, against 49,771 tons on the 15th July, showing an increase of 795 tons. This, with the increase of 201 tons for the first half of July, makes the total 996 tons for the month. The stock of English G.m.b.'s in Liverpool, has been increased from 8 to 10 tons. Refined and manufactured sorts are quiet. Quotations being:—tough cake, £45. 10s. to £46.; best select, £47. to £47. 10s.; Indian sheets, £51.; strong sheets, £54.; and yellow metal sheets, 4¾d. per lb.

The sales of furnace material for the fortnight comprise— at Liverpool: 60 tons Cueva de la Mora precipitate, at 8s. 9d. per unit; 1,200 tons Argentiferous Montana Matte, 3,935 tons Argentiferous Anaconda Matte, 200 tons Argentiferous Lead Matte, and 80 tons Argentiferous Chili Regulus, on private terms; 150 tons ordinary Montana Matte, at 8s. 9d. to 8s. 6d.; and 278 tons Mexican ore, to arrive, at 8s. per unit.

WEST OF SCOTLAND CHEMICALS.

GLASGOW, TUESDAY.

The general chemical market still inclines to the firmer side, though not at all with any conspicuous emphasis, and while there are no important price changes to note, caustic soda, soda crystals, and bleaching powder are reported as rather scarcer. In some of these ordinary chemicals there has been a rather more active feeling as regards export orders.

In the mineral oil and paraffin section there is still a fair briskness of business carried through, chiefly for forward consumption as regards burning oil. Gas oil and lubricating oils are firm, and the former (865°) is now to be quoted at a five shillings advance. An even flow

of production at the various works seems not assured at present, disputes between masters and men spreading, with one of the large factories very much crippled pending a quarrel of the sort. This, if continued, will influence some products for the rise.

Sulphate of ammonia is very scarce, and at the close of the week £13. 15s., f.o.b. Leith, was paid for prompt. It is not procurable at that to-day, and both sides of the market concur in a £14. spot value, although no business yet reported at that.

Chief prices current are:—Soda crystals £2. 15s. nett, Tyne; soda ash £5. 5s. nett, Tyne; refined alkali £6. 10s. nett, Tyne; alum in lump, £5. 10s. nett, Glasgow; caustic soda, white, 74° £10. 10s., 70/72° £9., 60/62° £8., and cream 60/62° £7. 15s., all nett Liverpool; bleaching powder £8. 5s. nett Tyne; saltcake 24s.; borax, English refined, £30., and boracic acid, £37. 10s. nett, Glasgow; bicarbonate of soda, 5-cwt. casks, £6. 10s., and 1 cwt. casks £6. 15s. less 2½%, Liverpool; bichromate of potash, 4¼d. nett, for Scotch and English deliveries (for export, 4¼d. nett f.o.b. Glasgow); bichromate of soda, 3¼d. nett, for Scotch and English deliveries (for export, 3¼d. nett, f.o.b. Glasgow); chlorate of potash 8¼d. less 5% Liverpool; nitrate of soda, 9s. 9d.; sulphate of ammonia, £14., f.o.b. Leith; sal ammoniac, first and second white, £37. and £35. less 2½% any port; sulphate of copper, £15. 5s., less 5% Liverpool; paraffin scale, hard and soft, 17½d. per lb; paraffin wax 120° semi-refined 23½d.; paraffin spirit (naphtha) 3¼d. a gallon; paraffin oil, burning, standard No. 1 grade, 5d per gallon at works, for Scotch buyers (English sales about ½d. to 1d. lower); ditto (lubricating) 86½° £3. 15s. to £4., 88½° £4. to £5. 10s., and 890/895° £4. 15s. to £6. 5s. Week's imports of raw sugar at Greenock were nil.

New Companies.

Permanent Enamelled Iron Company, Ltd.—CAPITAL £5,000., in shares of £1. each. This company has been formed to acquire the business of enamellers, etc., now carried on by A. and F. G. Jackson, at Plume-street, Aston, Warwick, under the style of the Permanent Enamelled Iron Company.

West Smithfield Cold Storage Company, Limited.—CAPITAL £25,000., in shares of £1. each. This company has been formed to provide cold storage stores, and to store frozen and other meat. The subscribers to the Memorandum of Association are:—F. B. Nicholson, 9, St. Petersburg Place, London, W., engineer; H. R. Terry, 54, Gower-road, London, E., clerk; S. E. Hubbard, Redhill, solicitor; A. N. Spencer, 1, Park Hill, Bexley, secretary; A. H. Tyler, 5, Crown Court, London, E.C., civil engineer; E. K. Vesian, 6, Crown-street, London, solicitor; E. G. Tyler, 71, Eastcheap, London, E.C., clerk.

General Electrolytic Patent Company, Limited.—CAPITAL £24,000., in shares of £1. each. This company has been formed to acquire certain patent rights in connection with the manufacture of alkalies, chlorine, and other chemical compounds by electrolysis. The subscribers to the Memorandum of Association are:—W. H. Sander, 6, Lorrimer-road, London, S.E., clerk; A. H. Wilkins, West Kensington Park, London, W., clerk; A. W. Barr, Torry Glen, Chingford, accountant; H. Roach, Lower Clapton, clerk; J. Murray, 3, Ceciley Villas, Huntingdon-road, East Finchley, London, N., accountant; E. Giles Winn, 21, Lorn-road, Brixton, sign writer; W. J. Robins, Copthall House, London, E.C.

New Ferry Brick and Iron Works, Ltd.—CAPITAL £15,000., in shares of £1. each. This company has been formed with a view to purchasing and carrying on the business formerly prosecuted by The Cannon Hollow-ware Company, Limited, near Birkenhead. The subscribers to the memorandum of Association are:—C. Barnett, Coseley, Sedgley, Staffs., widow; W. Sheldon, Coseley, Sedgley, Staffs., spinster; F. E. Clayton, Coseley, Sedgley, Staffs., married woman; A. F. Hawthorne, Coseley, Sedgley, Staffs., married woman; R. Clayton, Coseley, Sedgley, Staffs., esquire; E. S. Barnett, Coseley, Sedgley, Staffs., ironfounder; W. H. Hawthorne, Coseley, Sedgley, Staffs., ironfounder.

Frank W. Clark and Company, Ltd.—CAPITAL £10,000., in shares of £1. each. The object of this company is to acquire an invention relating to the distillation of hydro-carbons, and to distribute gas and electricity. The subscribers to the Memorandum of Association are:—F. Murray, 16, Birchin-lane, London, S.W., solicitor; C. Steele, Battersea Park, London, S.W., shorthand writer; H. P. Landon, 53, New Broad-street, London, E.C., solicitor; H. C. D. Nettleton, 4, Westeria-road, Lee, secretary; J. McDonald, 43, Threanneedle-street, London, E.C., Australian agent; F. W. Clark, South Norwood Hill, London, S.E., engineer; A. C. Trotman, 49, Gubyon Avenue, Herne Hill, London, clerk.

Combined Soap Company, Ltd. CAPITAL £20,000., in shares of £1. each. This company has been formed to acquire an invention

for effecting improvements in dry soap, and to purchase the business soap manufacturers carried on by the Combined Soap Company Hawken's-street, Hulme, Manchester, and to trade as soap boiler, tallow chandlers, oil refiners, etc. The subscribers to the Memorandum of Association are:—W. H. Horton, Overdale Villa, Bowden, chemical manufacturer; E. M. Taylor, Polefield, Prestwich, chemical manufacturer; A. Holt, Rippingham-road, Withington, pianoforte maker; B. Clayton, Bowdon-lane, Marple, silk mercer; R. Bridge, Rave dale, Bury, silk mercer; G. Foster, Seedley-road, Pendleton, clerk; W. D. Grozier, 308, Albert-road, Sheffield, paper maker.

The Patent List.

This list is compiled from Official sources in the Manchester Technical Laboratory, under the immediate supervision of George E. Davis and Alfred R. Davis, who report professionally upon the value of Chemical Patents.

APPLICATIONS FOR ENGLISH LETTERS PATENT.

- Improvements in the Use of Metals of the Alkaline Earths, etc. E. Ball and H. C. Jenkins. 14,229. July 24.
 Refuse Destruction Furnaces. W. Horsfall. 14,245. July 24.
 Rendering Air Antizymotic. G. J. Epstein. 14,285. July 24.
 Colouring Matters Derived from Anthraquinone. H. E. Newton. 14,287. July 25.
 Improvements in Compressed Fuel. G. V. Priestley. 14,378. July 25.
 Compounds of Iron with Fatty Acids. A. K. Huntington. 14,379. July 26.
 Improvements in the Manufacture of Bricks and Tiles. J. N. 14,437. July 27.
 Obtaining Pure Metallic Manganese by Electrolysis. L. Voltmer. 14,438. July 28.
 Improvements in Electric Furnaces. A. F. W. Kreinsen. 14,439. July 28.
 Manufacture of Yeast. W. Bruce. 14,567. July 29.
 Covering Lead Surfaces to Protect Water, etc., from Contamination with Lead. A. McDougall. 14,586. July 29.
 Purifying Cement Copper from Arsenic. P. Becker. 14,623. July 29.
 Improvements in Cells for Electrolysis. F. Hurter. 14,628. July 29.

GERMAN PATENTS period ending AUGUST 5, 1893.

Specially abstracted by Dr. H. Zerener, civil engineer, the Pat. Office, 20 Eichendorffstrasse, Berlin, N., for the Chemical Trade Journal. Dr. Zerener is willing to at once protest against the grant of such new Patents as may collide with the interests of subscribers.

- 22 A. 3,346. Preparation of $\alpha_1 \alpha_2$ Amidonaphthol-disulpho Acid. A. für Aniline fab., Berlin, S.E.
 22 B. 14,154. Preparation of $\beta_1 - \alpha_3$ Naphthol- β_4 Sulpho Acid I. Anal. u Soda fabrik, Ludwigshafen, a/R.
 22 K. 10,418. Preparation of Dialkylamidophenyl-naphthylamines. N. and Sandos, Basel.
 12 K. 10,432. Obtaining Carbonic Acid from Bicarbonate Lyes. Kropff, Düsseldorf.
 22 B. 14,561. Rust Preventing Composition. Dr. A. Buecher, Heidelberg.
 22 C. 4,316. Preparation of $\alpha_1 \alpha_2$ Dioxynaphthalene- $\beta_2 \beta_3$ Disulpho Acid. L. Cassella and Co., Frankfurt, a/M.
 22 G. 7,327. Blue Colouring Matters of the Induline Series. A. G. Chem Industrie, Basel.
 22 M. 9,110. Obtaining a Grey Blue Colouring Matter from β -naphtholone. Dr. O. Manasse, München.
 22 O. 1,915. Preparation of α -naphthylamine sulpho- α -acids from Naphthalene Sulpho Acid. K. Oehler, Offenbach a/M.
 22 S. 6,658. Green Blue Colouring Matters. Soc. Ann. Matieres Colours et Prod Chem, St. Denis, Paris.

Gazette Notices.

PARTNERSHIPS DISSOLVED.

- H. GIBSON AND H. WATKINS, Leeds and Kidderminster, drysalts, under the style of Hugh Gibson and Co.
 S. F. TIPPETTS AND W. L. BISHTON, varnish and colour manufacturers, Moss Green, Wolverhampton, under the style of the Wolverhampton Varnish Colour Co.

BANKRUPTCY ACTS, 1883 and 1890.

Receiving Order.

- BEST, JAMES, Kenninghall-road, Clapton, N.E., late Moorgate-street, E., occupation, late chemist.

Adjudication.

- RUTHERFORD SQUIRE KNIGHT, Shrubbery-road, West Green, Tottenham, late 1 street, Walworth, S.E., engineer, late oil and colourman.

IMPORTS OF CHEMICAL PRODUCTS

AT
THE PRINCIPAL PORTS OF THE UNITED KINGDOM.

LONDON.

Week ending July 27th.

Acetic Acid—		
Belgium,	4 pkgs.	Sawer, Sons & Co.
Holland,	100	A. & M. Zimmermann
Acetone—		
Holland,	1 pkg.	A. & M. Zimmermann
Alkali—		
France,	220 c.	Arnati & Harrison
Alum—		
Holland,	12 pkgs.	Oblenschlager Bros.
Germany,	200 pkgs.	R. W. Greeff & Co.
Aluminium Chloride—		
Germany,	4 pkgs.	Burgoyne & Co.
Ammonia—		
Holland,	10 pkgs.	J. Owen
Antimony—		
Australia,	35 t.	Moreton Cox & Bros.
France,	3	Major & Field
"	3	H. Johnson & Sons
Asbestos—		
Italy,	£50	London Asbestos Co.
France,	21	Flageollet & Co.
Canada,	260	Bolling & Lowe
Barytes—		
Belgium,	79 cks.	O'Hara & Hoar
"	20	W. Harrison & Co.
Germany,	31	Blundell, Spence & Co.
"	108	W. Harrison & Co.
Holland,	85	J. Owen
"	20	Magee, Taylor & Co.
Belgium,	18	W. Fenton
"	6	J. L. Lyon & Co.
Boracic Acid—		
Italy,	14 pkgs.	Mc Dougall & Co.
Caoutchouc—		
France,	1 c.	Flageollet & Co.
U. States,	112	Prop. Bull Wf.
E. Indies,	58	"
Rangoon,	1	Prop. Hay's Wf.
C. America,	20	Price, Hickman & Co.
Savannah,	27	Stiebel Bros.
E. Indies,	5	L. & I. D. Jt. Co.
Cape,	170	"
U. States,	43	"
France,	20	H. Johnson & Sons
Zanzibar,	19	Hale & Sons
E. Indies,	129	N. S. S. Co. Ltd.
"	17	Prop. Hay's Wf.
Castor Oil—		
France,	23 brls.	Beresford & Co.
"	24	Maconochie Bros.
"	12	A. J. Humphrey
"	145	Windschuegl, Hedley & Co.
E. Indies,	6	Anderson, Weber & Smith
"	20 cs.	Co-op. Lightge
"	"	Asc. Ld.
Italy,	35	B. & N. Whvs Co. Ltd.
Chemicals (otherwise undescribed)		
Germany,	16 pkgs.	A. & M. Zimmermann
"	£12	Beresford & Co.
"	100 cs.	Domeier & Co.
Holland,	22 pkgs.	H. Lorenz
Germany,	£12	Burgoyne & Co.
"	32 pkgs.	T. H. Lee
"	1 cs.	Phillips & Graves
"	9 cks.	Craven & Co.
"	2	Hernu, Peron & Co.
Cream of Tartar—		
Italy,	8 pkgs.	Fellows, Morton & Co.
France,	15	W. C. Bacon & Co.
"	10	M. Ashby, Ltd.
Holland,	107	Middleton & Co.
France,	14	B. & F. Wf. Co., Ltd.
Disinfectants—		
N. Russia,	25 pkgs.	M. D. Co.

Dyestuffs—

Argols		
Italy,	21 pkgs.	Thames, S. T. & L. Co., Ltd.
Cochineal		
Canaries,	10 pkgs.	Johnson, Hicks & Co.
Extracts		
France,	1 pkg.	Hernu, Peron & Co.
U. States,	50	W. Burton & Sons
France,	1	Bennett S. S. Co.
Canada,	374	A. J. Humphrey
Germany,	5	T. H. Lee
Austria,	100	A. J. Humphrey
Canada,	120	Union L. Co., Ltd.
France,	185	L. J. Levinstein & Sons
"	112	Prop. Chmblins Wf.
Denmark,	67	Sharland & Co.
"	1	Tegner, Price & Co.
Gambler		
E. Indies,	650 pkgs.	L. & I. D. Jt. Co.
"	471 t.	R. & J. Henderson
Indigo		
E. Indies,	5 cts.	Arbutnot, Latham & Co.
"	16	Croysdale & Co.
Myrabolams		
E. Indies,	2,684 pkgs.	A. Hagan
"	1,248	W. Shelcott
"	1,366	Ross & Deering
"	1,344	J. P. Alpe & Co.
"	980	J. Graves
Safflower		
E. Indies,	30 pkgs.	Lewis & Peat
Sumac		
Italy,	500 pkgs.	Beresford & Co.
"	150	Sollas & Sons
"	200	W. Shelcott
Tanner's Bark		
Belgium,	11 t.	Leach & Co.
"	25	Furness, Withy & Co.
Natal,	11	L. & I. D. Jt. Co.
"	92	A. & W. Nesbitt
Adelaide,	186	Baxter & Hoare
"	2	Goad, Riggs & Co.
"	80	Beresford & Co.
Germany,	30	Culverwell, Brooks & Co.
Turmeric		
E. Indies,	100 pkgs.	A. J. Smith
Valonia		
France,	111 t.	A. J. Humphrey
Farina—		
Belgium,	200 pkgs.	T. H. Lee
Holland,	50	J. Barber & Co.
"	100	J. Knill & Co.
French Chalk—		
Italy,	81 pkgs.	Magee, Taylor, & Co.
Glucose—		
U. States,	250 pkgs.	250 c. Trier, Meyer, & Co.
"	250	250 c. B. & N. Whvs. Co.
"	100	603 Page, Son, & East
"	50	285 G. White
"	20	110 L. Sutro & Co.
"	800	800 R. G. Hall & Co.
"	1,000	1,000 W. Balchin
"	50	280 Middleton's Wf. Co., Ltd.
"	445	1,920 L. Norman & Co.
"	200	200 Barrett, Tagant, & Co.
France,	200	200
Germany,	15	115 J. Knill & Co.
"	300	300 Baxter & Hoare
U. States,	98	588 L. & I. D. Jt. Co.
"	5	28 Clarke, Nickolls & Co.
"	250	250 Prop Chmblins Wf.
Belgium,	445	880 R. G. Hall & Co.
"	70	29 O. Pickford
Germany,	100	110 A. Thumann & Co.
Lead Acetate—		
Germany,	40 pkgs.	Beresford & Co.
Manganese—		
Holland,	5 t.	T. H. Lee
Manure—		
France,	61 t.	J. Burnett & Co.

Methyl Alcohol—

Holland,	8 dms	Lister & Biggs
Germany,	10	Elkan & Co.
"	11	Lister & Biggs
Belgium,	1 brl.	Stein Bros.
Mica—		
E. I.,	£3,295	W. M. Smith & Sons
Naphthol—		
Holland,	8 pkgs.	Phillips & Graves
Ochre—		
France,	40 cks.	W. Harrison & Co.
"	38	Burrell & Co.
Italy,	14	"
Holland,	4 cs	Phillips & Graves
France,	252	Anderson, Weber, & Smith
"	4	Davies, Turner, & Co.
Paraffin Wax		
U. States,	500 pkgs.	J. H. Usmar & Co.
"	100 brls	Wallington & Boler
Germany,	7 cs.	T. H. Lee
U. States,	90	L. & I. D. Jt. Co.
Phosphate Rock—		
France,	260 t.	A. Hunter & Co.
Belgium,	260	Walker, Howard, & Co.
"	350	Anglo Contl. G. Wks.
Pitch—		
N. Russia,	600 cks.	Fellows, Morton, & Co.
Plumbago—		
Ceylon,	112 brls.	J. Thredder, Son, & Co.
"	70	Doulton & Co.
Italy,	100 bgs.	B. Gallaway
Germany,	134 cs	Prp. Scott's W.
Ceylon,	159	R. G. Hall & Co.
Holland,	2 cks.	B. Gallaway
Ceylon,	58	R. Warner & Co.
Potassium Carbonate—		
France,	110 c.	Beresford & Co.
"	40	Spies Bros. & Co.
Potassium Oxalate—		
Belgium,	20 pkgs.	Leach & Co.
Potassium Sulphate—		
Germany,	102 pkgs.	Putz & Co.
France,	50	Petri Bros.
"	500	F. W. Berk & Co., Ltd.
Pumice Stone—		
Italy,	8 t.	Acton & Borman
"	16	T. & W. Farmiloe
"	4	Burrell & Co.
Italy,	19	O'Hara & Hoar
"	19	Union Lightge. Co.
Quicksilver—		
Italy,	500 brls.	L. & I. D. Jt. Co.
Rosin—		
Belgium,	50 brls.	G. Ward & Sons
U. States,	513 F.	S. Chiesman & Co.
Saltpetre—		
Germany,	228 cks.	P. Hecker & Co.
"	20	J. Hall & Son
"	20 kgs.	Baiss Bros. & Co.
Soda—		
Holland,	110 c.	Beresford & Co.
Sodium Acetate—		
France,	9 pkgs.	S. F. Waters & Co.
Sodium Bromide—		
U. States,	6 pkgs.	Pickford & Co.
Stearine—		
France,	120 bgs.	G. Boor & Co.
"	8	Walbaum & Tosetti
Sulphur—		
Italy,	9 t.	F. C. Devon & Co.
"	25	F. Smith
"	5	Hyslop & Symonds
"	50	C. Vincent
"	8	Middleton S. S. Co.
"	10	J. Puddy & Co.
Talc—		
Italy,	£50	G. G. Blackwell, Sons, & Co.
Tar—		
N. Russia,	2,500 brls.	W. F. Malcolm & Co.
"	320	Union Whvs. Co.
"	255	Linck, Moeller, & Co.
Tartaric Acid—		
Holland,	15 pkgs.	Middleton & Co.
"	12	B. & F. Wf. Co., Ltd.
"	2	J. Owen

Turpentine—

Germany,	5 pkgs.	B. & N. Wvs. Co., Ltd.
U. States,	1,800 brls.	Nickoll & Knight
"	1,758	Prod. Broker's Co., Ltd.
B. W. I.,	2,360	"
N. Russia,	102 F.	S. Chiesman & Co.
Ultramarine—		
Holland,	10 cks.	G. Rahn & Co.
Varnish—		
France,	58 pkgs.	Flageollet & Co.
U. S. A.,	10	Dawson Bros.
Vermilion—		
Germany,	4 cs.	Phillips & Graves
White Lead—		
Belgium,	29 cks.	Colthurst & Harding
Holland,	36 brls.	W. Balchin
Germany,	15	Blundell, Spence, & Co.
"	12	Spies Bros. & Co.
"	4	H. Lambert
Belgium,	22	Ross & Deering
"	8	O'Hara, Matthews, & Co.
Holland,	50	Prop. Dowgate Dk.
Austria,	5 cs.	Magee, Taylor, & Co.
Zinc Oxide—		
Holland,	175 brls.	M. Ashby, Ltd.
U. States,	100	"
LIVERPOOL.		
<i>Week ending July 27th.</i>		
Acetate—		
Dunkirk,	1 crt.	"
Acetic Acid—		
Rotterdam,	5 cs.	"
Alumina Sulphate—		
Rotterdam,	4 cks.	"
Ammonia—		
Zarate,	3 cyldrs.	J. Nelson & Sons, Ltd.
Barytes—		
Rotterdam,	12 cks.	"
Boracic Acid—		
Hamburg,	3 cks.	"
Borate of Lime—		
Valparaiso,	441 bgs.	"
Castor Oil—		
Calcutta,	1,270 cs.	Ralli Bros.
"	100	"
Genoa,	10	C. Schneider
"	19	"
Leghorn,	15	"
Chemicals (otherwise undescribed)		
Rouen,	36 cks.	Co-op. W'sale Society, Ltd.
Colours—		
Hamburg,	4 cs.	"
In transit,	105	"
Rotterdam,	13	43 cks.
Cottonseed Oil—		
New York,	2 brls.	M. Bell
Cream of Tartar—		
Barcelona,	5 cks.	"
Bordeaux,	3 cs.	"
Dried Blood—		
M. Video,	504 sks.	"
Dyestuffs—		
Algarrobia		
Valparaiso,	111 bgs.	Hughes, Treleven, & Co.
Totototello,		
Alizarine	454	"
Fustic		
Rotterdam,	44 cks.	"
Gambler		
Philadelphia,	50 brls.	200 bxs.
Logwood		
Singapore,	869 bls.	"
Myrabolams		
New York,	100 bgs.	"
Bombay,		
Calcutta,	1,537 bgs.	"
Orchella		
San Francisco,	12 bls.	Bartning Gebr
"	1,000 bgs.	"

Saffron Valencia, 1 cs.	
Sumac Palermo, 100 bgs. 150 bls.	
Yalonia Smyrna, 128 t. Essayan, Shabum, & Co.	
"	114
Farina Hamburg, 100 bgs.	
Glucose Hamburg, 88 cks. New York, 600 brls.	
Iodine Valparaiso, 78 brls. A. Gibbs & Co. " 1 cs. Kolp & Co.	
Lead Acetate Hamburg, 16 cks.	
Manganese Gothenburg, 1,050 t. Bordeaux, 278	
Naphtha Philadelphia, 6,500 brls. Anglo-American Oil, Ltd.	
Nickel Oxide New York, 159 cks.	
Ochre Rouen, 28 cks. Co-op. W'sale Society, Ltd.	
Paint Boston, 25 cs. " 20 G. Bollo	
Pitch Sydney, 20 cks. A. B. Outram	
Potash Dunkirk, 2 dms.	
Potash Salts In transit, 500 bgs.	
Pumice Stone Leghorn, 3 cs. 12 bgs. Messina, 110 Rouen, 80 Co-op. W'sale Society, Ltd.	
Pyrites Huelva, 1,832 t. Tennants & Co. " 2,533 Matheson & Co.	
Saltpetre Hamburg, 6 cks. 30 kgs.	
Soap Leghorn, 500 bxs. Weaver & Sterry " 50 cs. Naples, 56 Auvigny & Co. Bordeaux, 10 In transit, 265 pkgs. Cunard S. S. Co., Ltd. Boston, 5 Boots Pure Drug Co.	
Stearine B. Ayres, 243 bgs. W. Dickinson Antwerp, 24	
Sulphur Huelva, 2,956 t. Matheson & Co. Catania, 50 80 brls. 390 bgs. Pomaron, 1,500 Mason & Barry	
Tallow Baltimore, 134 brls. 24 hds. New York, 100 pps. Haycroft & Pethick M. Video, 527 cks. J. Nelson & Sons, Ltd. Zarote, 24 hds. Philadelphia, 135 bgs. Co-op. W'sale Society, Ltd. Rouen, 166 brls. 83 tcs. J. Mackee & Co. Boston, 524 237 bhd. 3 cks. " 343 tcs. Sydney, N.S.W., 327 cks. Lever Bros., Ltd.	
" 254	
Rotterdam, 1 tce.	
San Francisco, 152 brls.	
Tartar Naples, 2 cks. Bordeaux, 23	
Tartaric Acid Rotterdam, 24 cks. " 4 Sachse & Klemm	
Tinical Calcutta, 224 bgs.	
Ultramarine Rotterdam, 29 cs. 7 cks.	
Waste Salt Hamburg, 1,016 bgs. 780 t.	
White Lead Rotterdam, 9 cks.	
Zinc Ashes Rouen, 31 cks. Co-op. W'sale Society, Ltd.	

Zinc Oxide Antwerp, 61 brls. Rotterdam, 25 cks.	
Zinc Skimmings Baltimore, 76 bgs.	

HULL.

Week ending July 29th.

Acetic Acid Rotterdam, 30 blns. G. Lawson & Sons	
Alkali Hamburg, 8 cks.	
Alum Antwerp, 13 cks. Bailey & Leatham Rotterdam, 73 W. & C. L. Ringrose	
Aluminium Rotterdam, 1 cs. Hutchinson & Son	
Barytes Rotterdam, 46 cks. Hutchinson & Son	
Antwerp, 10 45 bgs. Bailey & Leatham	
Bremen, 22 Veltmann & Co.	
Castor Oil Calcutta, 999 cs.	
Cellulose Rotterdam, 70 bls. Hutchinson & Sons	
Chemicals (otherwise undescribed) Hamburg, 5 cks. Wilson, Sons, & Co., Ltd.	
Bremen, 2 pks. Veltmann & Co.	
Antwerp, 30 Wilson, Sons, & Co., Ltd.	
Dunkirk, 32 "	
Colours Hamburg, 2 pks. Wilson, Sons, & Co., Ltd.	
Danzig, 20 cks.	
Rotterdam, 105 W. & C. L. Ringrose	
Stettin, 12 cks. Wilson, Sons, & Co., Ltd.	
Flushing, 8 pks. G. Lawson & Son	
Bremen, 12 cks. Veltmann & Co.	
Flushing, 9 4 cs. Hutchinson & Sons	
Rotterdam, 9 1 14 pks. G. Lawson & Sons " 4 Tudor & Sons	
Hamburg, 17 pks.	
Antwerp, 4 15 cs. Wilson, Sons, & Co., Ltd.	
Rotterdam, 9 12 46 cks. Hutchinson & Son	
Cream of Tartar Rotterdam, 10 cks. Hutchinson & Son	
Dextrine Stettin, 30 bgs. Wilson, Sons, & Co., Ltd.	
Dyestuffs Alizarine Rotterdam, 54 pks. W. & C. L. Ringrose " 58 cks. 10 cs. Hutchinson & Son	
Madder Rotterdam, 5 cks. W. & C. L. Ringrose	
Myrabolams Bombay, 6,809 pks.	
Farina Hamburg, 100 bgs. Wilson, Sons, & Co., Ltd.	
Harlingen, 260	
Stettin, 170 Wilson, Sons, & Co., Ltd.	
" 50	
Ghent, 248 cs. Wilson, Sons, & Co., Ltd.	
Antwerp, 100 bgs.	
Glucose New York, 250 brls. Stettin, 350 bgs.	
Kaolin Rotterdam, 255 bgs. Hutchinson & Son	
Manure Ghent, 160 t.	
Paint New York, 20 cs. Wilson, Sons, & Co., Ltd.	
Copenhagen, 1 brl.	

Pitch Dunkirk, 27 cks. Wilson, Sons, & Co., Ltd.	
Plumbago Rotterdam, 22 cks. G. Lawson & Sons	
Rosin Amsterdam, 12 cs. W. & C. L. Ringrose	
Soda Rotterdam, 100 brls. Hutchinson & Son	
Sodium Phosphate Rotterdam, 4 cks. Hutchinson & Son	
Stearine Antwerp, 10 bgs. Wilson, Sons, & Co., Ltd.	
Tallow New York, 35 cks. Wilson, Sons, & Co., Ltd.	
" 50 pks.	
Tar Uleaborg, 1,000 brls. 200 hf.-brls. J. Good & Sons	
Tartar Bordeaux, 1 ck.	
Tartaric Acid Rotterdam, 6 cks. Hutchinson & Son	
" 2 G. Lawson & Sons	
Turpentine Bordeaux, 3 cks. Wilson, Sons, & Co., Ltd.	
Ultramarine Rotterdam, 4 cks. Hutchinson & Son	
Bremen, 8	
Varnish New York, 101 pks. Wilson, Sons, & Co., Ltd.	
Konigsberg, 5 cks. J. Good & Sons	
White Lead Rotterdam, 44 cks. Hutchinson & Son	
Antwerp, 14 Bailey & Leatham	
Ghent, 15 Wilson, Sons, & Co., Ltd.	
Rotterdam, 9 T. F. Chambers & Co.	
Zinc Oxide Rotterdam, 38 brls. Hutchinson & Son	

GLASGOW.

Week ending August 3rd.

Alum Rotterdam, 21 cks. J. Rankine & Son	
Castor Oil Calcutta, 3,629 cs. Antwerp, 85 cks.	
Cellulose Hamburg, 102 bls.	
Chemicals (otherwise undescribed) Amsterdam, 16 cks. J. Rankine & Son	
Hamburg, 13 cs. 5 bgs.	
Colours Rotterdam, 6 cs. J. Rankine & Son	
Amsterdam, 20 pkgs.	
Dyestuffs Alizarine Rotterdam, 5 cks. J. Rankine & Son	
Amsterdam, 22 pkgs.	
Argols Bordeaux, 28 bgs.	
Extracts Antwerp, 4 cks.	
Turmeric Calcutta, 500 bgs.	
Farina Delfszyl, 500 bls.	
Manganese Amsterdam, 1,564 pkgs.	
Phosphate Antwerp, 200 bgs.	
Pitch Archangel, 500 cks. Young & Falconer	
Potash Rotterdam, 34 cks. J. Rankine & Son	
Montreal, 6 brls.	

Potassium Cyanide Antwerp, 150 cs.	
Pyrites Huelva, 1,884 t. Tharsia Co.	
Tannin Hamburg, 1 cs.	
Tar Archangel, 3,338 brls. Young & Falconer	
Tartar Bordeaux, 13 cks.	
Tartar Emetic Hamburg, 5 cks. 3 cs.	
White Lead Rotterdam, 43 cks. J. Rankine & Son	
Zinc Oxide Rotterdam, 25 cks. J. Rankine & Son	
Antwerp, 45	
Zinc White Rotterdam, 50 cks. J. Rankine & Son	
Amsterdam, 50 " "	

TYNE.

Week ending July 29th.

Alum Earth Hamburg, 17 cks. Tyne S. S. Co.	
Barytes Rotterdam, 13 cks. Tyne S. S. Co.	
Colours Rotterdam, 1 cs. 4 cks. Tyne S. S. Co.	
Farina Antwerp, 1 bg. Tyne S. S. Co.	
Limestone Antwerp, 5 crts. 2 cs. Tyne S. S. Co.	
Paint Gefle, 13 dms.	
Pyrites Aarhus, 285 t. Copenhagen, 142	
Sulphur Pomaron, 900 t. Mason & Barry	
Tartaric Acid Rotterdam, 5 cks. Tyne S. S. Co.	

GOOLE.

Week ending July 26th.

Alkali Calais, 16 cks.	
Ammonia Rotterdam, 13 cs.	
Caoutchouc Boulogne, 11 cks.	
Dyestuffs Alizarine Rotterdam, 14 brls. 93 pkgs.	
Fustic Demerara, 220 t.	
Dyestuffs (otherwise undescribed) Boulogne, 1 ck. 2 cs. 55 pkgs. Ghent, 6 cks.	
Farina Hamburg, 370 bgs. Delfszyl, 1,020	
Glucose Hamburg, 30 cks.	
Potash Rotterdam, 20 cks. 21 dms. Calais, 50	
Saltpetre Rotterdam, 100 bgs.	
Waste Salt Hamburg, 237 cks.	
Zinc Oxide Antwerp, 25 brls.	

GRIMSBY.

Week ending July 29th.

Aluminium Antwerp, 40 cs.	
Chemicals (otherwise undescribed) Hamburg, 31 pkgs.	
Dyestuffs (otherwise undescribed) Dieppe, 34 cks.	
Size Antwerp, 7 cks.	
Zinc Ashes Antwerp, 32 cks.	

EXPORTS OF CHEMICAL PRODUCTS

OF

THE PRINCIPAL PORTS OF THE UNITED KINGDOM.

LONDON.

Week ending August 2nd.

Acids—			
Trinidad,	5 c.	£7	
Hong Kong,	20 cs. 4	32	
Aluminous Cake—			
Calcutta,	80 t. 2 c.	£281	
Ammonia (Liquid)—			
M. Video,	4 c.	£14	
Cologne,	4	25	
Stockholm,	60 kgs. 3 cs.	50	
Ammonium Carbonate—			
Stettin,	2 t. 7 c.	£54	
Santos,	6	15	
Calcutta,	3 cs.	10	
Melbourne,	10	25	
Ammonium Chloride—			
Hamburg,	39 cks.	£213	
Cologne,	15	62	
Rio de Janeiro, 60 cs.		56	
Paris,	3 t.	105	
Ammonium Sulphate—			
Barbadoes,	50 t. 1 c.	£681	
Las Palmas,	22 10	293	
Paris,	20 5	263	
Rotterdam,	40 3	532	
Ghent,	35	473	
Hamburg,	304 3	3,971	
Arsenic—			
Wellington,	5 t. 10 c. 30 kgs.	£114	
Barium Sulphate—			
Venice,	10 cks.	£40	
Boric Acid—			
Melbourne,	9 cks.	£102	
Borax—			
Wellington,	1 t. 2 c.	£31	
Melbourne,	5	265	
Borax Crystals—			
Rio de Janeiro,	10 c.	£15	
Carbolic Acid—			
Hong Kong,	20 drs.	£13	
Bombay,	2 c.	10	
Fremantle,	9	17	
Sydney,	9	18	
Marseilles,	27 cks.	90	
Buenos Aires,	23	70	
Treport, 100 cns.		106	
Antwerp,	12	38	
Rotterdam,	108	542	
Singapore,	17	22	
Carbon Bisulphide—			
Philadelphia,	2 t. 16 c.	£43	
Caustic Soda—			
Bombay,	13 c.	£31	
Fremantle,	8 t. 1	79	
Sydney,	40 16	379	
Algoa Bay,	1 17	61	
Wellington,	1 3	29	
Melbourne,	5 2	56	
Mauritius,	9 14	132	
Nelson,	3 14	46	
E. London,	1 9	48	
Natal,	12	21	
Chemicals (otherwise undescribed)			
Melbourne,	13 cs.	£93	
Lisbon,	2	76	
Bundaberg,	6 c.	75	
Auckland,	7	21	
Wellington,	3 kgs.	21	
Shanghai,	5 pkgs.	12	
Chloride of Lime—			
Wellington,	1 t.	£25	
Auckland,	10 c.	12	
Hobart,	10	33	
Citric Acid—			
Bombay,	1 c.	£8	
Pr. Elizabeth,	1	8	
Boulogne,	12	96	
E. Ayres,	6	49	
Singapore,	1 cs.	10	
St. Petersburg,	7 cks.	286	
Hamburg,	3	26	
Shanghai,	2	21	
Coal Products—			
Alizarine			
Alexandretta,	35 kgs.	£70	
Rotterdam,	12 drs.	£380	
Aniline Salts			
Naples,	4 cks.	£25	
Anthracene			
Rotterdam,	47 cks.	£216	
Benzol			
Ternauert,	48 drs.	£382	
Calais,	5 pkgs. 17 brls.	70	
Boulogne,	18 cks.	132	
Rotterdam,	198 cks. 20 pns.	915	
Naphtha			
Sydney,	13 cs.	£20	
Treport,	55 cks.	143	
Naphthaline			
Treport,	50 cks.	£60	
Antwerp,	6	9	
Pitch			
Rotterdam,	816 t.	£938	
Antwerp,	844	1,006	
Alexandria,	100 brls.	35	
Baltimore,	557 cks.	233	
Tar			
Rio de Janeiro, 50 rls.		£22	
Stettin,	250 brls.	97	
Toluol			
Rotterdam,	20 pns.	£180	
Hamburg,	48 cks.	175	
Copper Sulphate—			
Sydney,	10 c.	£9	
Wellington,	10 t.	175	
Algoa Bay,	10 9	9	
Oporto,	10	160	
Cream of Tartar—			
Sydney,	13 c.	£50	
Launceston,	1 t. 10 c.	118	
Melbourne,	1	89	
Natal,	10	39	
Brisbane,	2	152	
Townsville,	8	35	
Cairns,	3	12	
Rockhampton,	1	70	
Lyttelton,	1 1	85	
Wellington,	1 2	60	
Adelaide,	2 10	200	
Disinfectants—			
Trinidad,	14 c.	£23	
Canterbury,	5 cs.	12	
Hong Kong,	4 20 drs.	36	
Sydney,	4 pkgs.	11	
Melbourne,	10	23	
Hamburg,	6 c.	10	
Wellington,	13	42	
Calcutta,	1 t.	28	
Dried Blood—			
Paris,	29 t.	£200	
Dunkirk,	15	100	
Flowers of Sulphur—			
Mosel Bay, 50 kgs.		£28	
Launceston,	1 t.	8	
Algoa Bay,	3 3 c.	26	
Hypophosphite of Lime—			
Philadelphia,	11 c.	£194	
Iron Sulphate—			
Mersyne,	3 t. 7 c.	£9	
Manure—			
Cherburg,	132 t.	£560	
Rosario,	7 7 c.	210	
Grenada,	5	36	
Barbadoes,	5	64	
Natal,	20 14	125	
Las Palmas,	7 10	38	
Rouen,	15	60	
Liban,	202 3	544	
Jamaica,	6	66	
Auckland,	37 15	153	
Mauritius,	10	300	
Dunkirk,	25	45	
Invercargill,	9	33	
Nitric Acid—			
Shanghai,	8 c.	£13	
Algoa Bay,	6	14	
Oxalic Acid—			
Seville,	14 c.	£19	
Phosphorus—			
Launceston,	5 cs.	£26	
Potash Crystals—			
Brussels,	4 c.	£35	
Oporto,	2	10	
Potassium Chlorate—			
Wellington,	2 c.	£8	
Potassium Cyanide—			
Delagoa Bay,	8 c.	£53	
Potassium Nitrate—			
Las Palmas,	10 c.	£9	
Potassium Prussiate—			
New York,	37 cks.	£456	
Sheep Dip—			
Launceston,	30 cs.	£150	
Natal,	9	11	
E. London,	420 drs.	115	
Adelaide,	4 t. 4 c.	105	

Saltpetre—

Wellington,	10 c.	£11
Algoa Bay,	9	10
Sydney,	1 t.	22
E. London,	6	7
Adelaide,	10	11
Oporto,	5 t. 10	112

Soda—

Melbourne,	6 c.	£5
Trinidad,	1	9

Soda Ash—

Sydney,	35 t. 4 c.	£191
Launceston,	4 10	27

Soda Crystals—

Demerara,	16 c.	£3
Cape Town,	4 t. 2	15
Algoa Bay,	12 15	40

Sodium Bicarbonate—

Trinidad,	4 t.	£31
Demerara,	10 c.	4
Adelaide,	4	26
Algoa Bay,	1 7	10
Fremantle,	5 8	26
Sydney,	20	128

Sodium Silicate—

Fremantle,	2 t. 4 c.	£11
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Sulphur—

E. London,	50 cks. 30 cs.	£59
Punta Arenas,	11 t. 2 c.	103

Sulphuric Acid—

E. London,	3 t. 12 c.	£15
Colombo,	35 cs.	35
Penang,	25	25

Superphosphate—

Riga,	480 t.	£1,440
Liban,	386 5 c.	1,158

Superphosphate of Lime—

Barbadoes,	504 bgs.	£248
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Tartaric Acid—

Nelson,	2 c.	£10
Boulogne,	5	28
Sydney,	20 cks.	113
Wellington,	4	22
B. Ayres,	2	11
Brisbane,	3	19
Lyttelton,	9	50
Canterbury,	8	41
Adelaide,	1 t. 5 5 cs.	149
Calcutta,	5	30
Melbourne,	2 10	255

Tartaric and Citric Acids—

Fremantle,	4 pkgs.	£21
Brisbane,	4 c.	27

LIVERPOOL.

Week ending August 2nd.

Acetic Acid—			
Lisbon,	1 t.	2 q.	£15
Alum—			
Calcutta,	35 t. 15 c.	£199	
Alexandretta,	2 10	12	
Tripoli,	2 9	12	
Ibrail,	1 14	8	
Oporto,	7	35	
Montreal,	5 2	25	
Maragan,	60 19 1 q.	280	
Alum Cake—			
Alexandria,	14 tcs.	£21	
Aluminoferrie—			
Montreal,	25 t. 16 c.	£74	
Ammonia—			
Pisco,	3 c.	£10	
Ammonium Carbonate—			
Hamburg,	1 t. 11 c.	£48	
Marseilles,	10	14	
Ammonium Chloride—			
Piræus,	4 c. 3 q.	£8	
Beyrout,	15	27	
B. Ayres,	13 3	22	
Montreal,	6	11	
Trieste,	1 t	36	
Galatz,	6	10	
Ammonium Sulphate—			
Barcelona,	25 t. 3 c.	£332	
Gr. Canary,	3 1	42	
Las Palmas,	20 6	274	
Alicante,	20	264	
Sourabaya,	502 2 1	6,314	
Hamburg,	150	1,950	
Antimony—			
Bombay,	1 t.		
Asbestos—			
Para,	1 cs.		
Barium Chlorate—			
New York,	7 c.	£33	
Bisulphite of Lime—			
Oporto,	13 c.	£7	
Bleaching Powder—			
Algiers,	8 cks.		
Baltimore,	448		
Boston,	451		
Ghent,	208		
Melbourne,	73		
Montreal,	67 35 kgs.		
New York,	321		
Rouen,	45		
St. Louis,	30 brls. 42 cs.		
Boric Acid—			
Montreal,	5 c.	£69	
Naples,	11	21	
Borax—			
Ponce,	5 c.	£8	
Montreal,	1 t.	30	
Antwerp,	2 2	62	
Hamburg,	4 10 3 q.	137	
Constantinople,	1 6	28	
Vera Cruz,	1 3 2	28	
Sydney,	6	5	
E. London,	5 1	8	
M. Video,	1	2	
Rotterdam,	3 10 1	105	
B. Ayres,	3 3	6	
Calcium Chloride—			
Sydney,	4 t. 16 c.	£11	
Carbolic Acid—			
Marseilles,	4 t. 19 c. 3 q.	£289	
Bombay,	10	8	
Rotterdam,	12 10	562	
Hong Kong,	1	20	
Alexandria,	1 4	73	
Hamburg,	15 3	891	
Rouen,	5 3	120	
Genoa,	1 2	70	
Carbonic Acid Gas—			
Malta,	10 cydls.	£59	
Caustic Potash—			
Melbourne,	1 t.	£31	
St. Louis,	17 c.	28	
Caustic Soda—			
Alicante,	10 dms.		
Aracajou,	10		
Baltimore,	135 brls.		
Barcelona,	100		
Beyrout,	10		
B. Ayres,	20		
Cadiz,		60 kgs.	
Calcutta,	173		
Cera,	30		
Constantinople,	5		
Cochimbo,	12		
Corunna,	8		
Genoa,	100		
Gibraltar,	20		
Havana,	50		
Leghorn,	37		
Manilla,	50		
Montreal,	100 50 pkgs.		
Naples,	35		
New York,	565		
Pernambuco,	15		
Rotterdam,	76		
St. Petersburg,	900 200		
Sierra Leone,	50		
Singapore,	50		
Stettin,	530 15 brls.		
Sydney,	48		
Tampico,	75		
Venice,	49		
Vigo,		10 cks.	
Antwerp,	32		
Bilbao,	10		
Gefle,		45	
Hamburg,	78		
Lisbon,	7		
Matanzas,	136		
M. Video,	50		
Olesea,	180		
Piræus,	50		

Chemicals (otherwise undescribed)

Samsoun,	12 c.	2 q.	£22
Philadelphia,	13 t.	1	326
Odessa,	1	2	35

China Clay—

Bombay,	196 t.
Boston,	300
Calcutta,	60
Constantinople,	15
Genoa,	20
Hamburg,	10
Lisbon,	15 4 c.
Montreal,	10
Naples,	20
Rio de Janeiro,	9 18

Chromate of Iron—

New York,	1 t.	£23
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Citric Acid—

Vigo,	1 c.	£9
Marseilles,	2	16

Coal Products—

Alizarine	
Lisbon,	3 cks.
Montreal,	5
Alizarine Colours	
New York,	6 cks.
Aniline Colours	
Yokohama,	5 cs.
Aniline Salt	
New York,	65 brls. 103 cs.
Anthracene	
Rotterdam,	142 cks.
Pitch	
Galatz,	100 brls.
Tar	
Lagos,	20 brls.

Cobalt Oxide—

Gijon,	3 c.	£32
Nagasaki,	3 3 q.	125

Copperas—

Savannah,	1 t.	2 q.	£2
Callao,	3 12 c.	3	8
Mazagan,	26	8	44
Adelaide,	10	2	19
Calcutta,	17	8	2
Varna,	8	10	20
Bombay,	16	8	27

Copper Sulphate—

M. Video,	2 t.	11 c.	£40
Vigo,	1	15	
Calcutta,	5	81	
Galatz,	3	48	
Madeira,	10	2 q.	9
Oporto,	10	3	9
Brindisi,	13	10	211
Madras,	1	10	24
Rouen,	15	233	

Cressylic Acid—

Rouen,	5 t.	£100
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Disinfectants—

Bombay,	5 t. 10 c.	£42
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French Chalk—

Philadelphia,	10 bgs.
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Guano—

Sourabaya,	50 t.	1 c.	3 q.	£750
Las Palmas,	70			195

Gypsum—

Stettin,	11 t.	£22
Lisbon,	5	12

Lime—

Accra,	13 t.	8 c.	2 q.	£27
W. C. Africa,	4			5
Sierra Leone,	20 brls			

Litharge—

Maranham,	4 kgs.
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Magnesia—

B. Ayres,	2 cs.
Lisbon,	12 12 tcs.

Magnesium Chloride—

Vera Cruz,	3 cs.
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Magnesium Sulphate—

Bombay,	3 t. 15 c.	£18
Puerto Cabello,	200 cs.	

Manganese—

Hamburg,	5 t.
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Manure—

Havre,	50 t.	4 c.	1 q.	£237
Marseilles,	5	2		5

Metallic Sodium—

Rotterdam,	11 c.	1 q.	£112
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Nitrate of Lead—

Vera Cruz,	9 c.	£10
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Nitric Acid—

Vera Cruz,	1 c.	£16
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Ochre—

Porto Alegre,	32 kgs.
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Oxalic Acid—

Genoa,	1	9	3	38
Melbourne,	2			56

Paint—

Bremerhaven,			45 dms.
Caldera,	2 cs.	6 cks.	
Genoa,	3	1	4
Matanzas,		13	
Mayaguez,		4	
New York,		8	
Para,			
Amsterdam,	6 kgs	6	
Calcutta,	180		
Cienfuegos,		4	
Colombo,	150	5	
Galatz,	280		
Havana,			20
Iceland,	8 c.		
Kingston, Jam.,	1,000		
Las Palmas,	28		
Maranham,	52		
Nassau,	75	2	
Panama,	5 cs.		
St. Johns, Nfld.,	20	1 brl.	
Santander,			6
Santiago de Cuba,		4 cks.	
Smyrna,	50		
Valparaiso,		49	

Painters' Colours—

Alexandria,	60 brls.	55 cks.
Antofagasta,	15	25 15 cs.
Fabia,	40	
Baltimore,	30	
Barcelona,	9	13
Bremen,	41	
Calcutta,	40 kgs.	
Galatz,	200	100
Lisbon,	19	30 cs.
Madras,	56 kgs.	
Maranham,	5	
Marseilles,	50 bgs.	
New York,	8	2 1
Odessa,	125	
Philadelphia,	100	
Ponce,	3 tcs.	
Punta Arenas,	10	
Rotterdam,	6 kgs.	50 bgs. 12 tins
San Juan,	250	10 cks.
Santander,	8	
Sierra Leone,	31	2 1 cs.
Smyrna,	20 dms. 108	
Sydney,	6 brls.	
Vigo,	10	
Algoa Bay,	2	
Bombay,	142	
B. Ayres,	125	12 25 brls.
Cape Town,	15	1
Corunna,		5
E. London,	4	
Gibraltar,	5	
Havana,		17
Loanda,		3 4
Manilla,	7 cs.	62
Para,		7
Rio de Janeiro,	15	
Trieste,	16	
Valparaiso,	30	

Paraffin Wax—

Genoa,	160 cs.
Boston,	50
Mitylene,	15
Rio de Janeiro,	4

Phosphate of Lime—

New York,	1 t.	£17
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Phosphorus—

M. Video,	5 cs.	£55
Shanghai,	5	50

Pieric Acid—

New York,	7 c.	2 q.	£35
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Potashes—

Antwerp,	11 c.	3 q.	£14
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Potassium Bicarbonate—

Leghorn,	1 t.	2 c.	3 q.	£29
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Potassium Bichromate—

Ghent,	1 t.	4 c.	£48
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Potassium Chlorate—

Messina,	10 c.	£27
Stockholm,	2 t.	124
Naples,	10	34
Hamburg,	1	14
Rotterdam,	1	56
Calcutta,	5	14
St. Petersburg,	12	10
Corunna,	10	40
Antwerp,	1	71
New York,	47	2,854
Boston,	3	15
Oporto,	1	5
Hioigo,	7	736
Hong Kong,	1	10
Madeira,	2	7
M. Video,	5	18

Potassium Sulphate—

St. Louis,	1 t.	16 c.	2 q.	£52
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Salt—

Accra,	10 t.	
Antwerp,	120	
Baltimore,	500	
Benin,	9	
Boston,	100	
Calcutta,	3,493	
Cameroons,	31	14 c.
C. C. Castle,	12	10
E. London,	5	
Halifax,	500	
Hamburg,	100	
Iceland,	175	
Kingston, Jam.,	15	
Loanda,	8	
Loango,	19	3
Montreal,	431	
Newcastle,	415	
Rangoon,	1,990	
Rotterdam,	190	
St. John, N.B.,	5	
Salt Pond,	12	10
B. Ayres,	4	15
Callao,	9	13
Havana,		9
Konigsberg,	820	
Lagos,	200	
M. Video,	2	3
Pernambuco,	1	
Rio de Janeiro,	2	
Rouen,	20	
Valparaiso,	5	10
Yokohama,	4	6

Saltpetre—

Piraeus,	7 t.	10 c.	£160
Savannah,	3	15	81
Coquimbo,	4		5

Sheep Dip—

Cape Town,	3 t.	8 c.	£102
Mossel Bay,	3	3 q.	6
Winnipeg,	16	3	17

Size—

Ghent,	15 brls.
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Soap—

Abonnema,			2 cs.
Alexandria,	20 bxs.		20
Algoa Bay,	1,350		
Amsterdam,	3,350		
Antigua,	180		
Barbadoes,	662		
Callao,	39		
Cape Town,	100		
Colombo,			9
Curacao,	25		1
E. London,	650		1
Las Palmas,	492		
Montreal,		19 brls.	
Mossel Bay,			26
N. Orleans,			2 cks.
New York,	170	3	34
Oporto,			1
Para,			1
Patras, 10 pkgs.			
Pt. Elizabeth,	250		

Soda—

Montreal,	30 bgs.
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Soda Ash—

Thomas, W. L.,	500
Tobago,	25
Annatto Bay,	40
Rosario,	250

M. Video,		25	
New York,	5,017	116	125
Oporto,		10	
Philadelphia,	400		120
Rio de Janeiro,		50	
Rosario,		50	
St. Petersburg,		72	
Varna,		150	
Adelaide,		67	
Copenhagen,	1,100		
Fiume,	100		
Ghent,	100		
Montreal,		14	
Santos,		20	
Smyrna,		100	
Sydney,		47	130

Soda Crystals—

M. Video,	117 cks.	
Montreal,	30	
Philadelphia,	140	747 kgs.
E. London,		6 brls.
Genoa,	6	
Nagasaki,	10	

Soda Salts—

Yokohama,	20 cs.
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Sodium Bichromate—

Dunkirk,	10 cs.
Hamburg,	21 cks.

Sodium Bicarbonate—

Amsterdam,	9 cks.	15 kgs.
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Amsterdam,	9 cks.	
Antwerp,		15 kgs.

Barcelona,	100
Boston,	100

Antwerp,

HULL.

Week ending July 29th.

Ammonium Sulphate—	
Stettin, 1,500 bgs.	
Benzol—	
Hamburg, 26 dms.	
Bleaching Powder—	
Bombay, 100 dms.	
Copenhagen, 2 cks.	
Stettin, 58	
Caustic Soda—	
Bergen, 4 dms.	
Danzig, 307	
Lissa, 70	
Chemicals (otherwise undescribed)	
Antwerp, 23 cs. 38 pks.	
Bombay, 1,384 cks.	
Christiania, 10 8 cs.	
Copenhagen, 26 50 pks.	
Danzig, 4 cs.	
Drontheim, 12	
Gothenburg, 31 70 pkgs.	
Hamburg, 33 77	
Kurrachee, 450	
Lissa, 200 pks.	
Rotterdam, 28 60 cs. 8	
Riga, 20 pks.	
Royal, 1 ck. 3 cs.	
St. Petersburg, 30 pks.	
Stettin, 9 cks. 23	
Cottonseed Oil—	
Antwerp, 304 c.	
Amsterdam, 102	
Danzig, 35	
Gothenburg, 153	
Hamburg, 860	
Konigsberg, 103	
Rotterdam, 1,703	
Stockholm, 400	
Stettin, 161	
Cresote—	
Copenhagen, 10 cks.	
Ghent, 3	
Gothenburg, 150	
Dyestuffs (otherwise undescribed)	
Hamburg, 1 ck.	
New York, 12 cs.	
Rotterdam, 1 bl. 2 cks.	
Riga, 4 bls.	
Royal, 1 ck.	
St. Petersburg, 8 cks.	
Stettin, 1 ck.	
Guano—	
Hamburg, 323 bgs.	
Linseed Oil—	
Antwerp, 7 c.	
Bergen, 17	
Bombay, 212	
Bordeaux, 35	
Christiania, 560	
Christiansand, 162	
Drontheim, 220	
Hamburg, 34	
New York, 174	
Port Said, 7	
Rotterdam, 2	
Stavanger, 61	
Manure—	
Hamburg, 41 t.	
Naphthalene—	
Riga, 120 bls.	
Ochre—	
Konigsberg, 3 cks.	
Painters' Colours—	
Antwerp, 33 cks. 6 cs.	
Amsterdam, 1 ck.	
Bergen, 2 cks. 40 dms.	
Bombay, 9 53 560 pkgs.	
Christiania, 31 1 48	
Copenhagen, 2 6	
Danzig, 19	
Drontheim, 1	
Hamburg, 48 6	
Konigsberg, 14	
Kurrachee, 10	
Lissa, 1 pkge.	
New York, 80	
Rotterdam, 18 7	
Riga, 30 1 1	
Royal, 15 3	
St. Petersburg, 60 cks.	
Stockholm, 2	
Stettin, 109	

Pitch—	
Antwerp, 378 t.	
Size—	
Flushing, 10 cks.	
Gothenburg, 2	
Soap—	
Copenhagen, 7 cs.	
Tallow—	
Bombay, 9 cks.	
Flushing, 18	
Tar—	
Amsterdam, 5 cks.	
Copenhagen, 14	
Hamburg, 6	
Rotterdam, 3	
Stettin, 1	
Turpentine—	
Bombay, 30 dms.	
Yarnish—	
Antwerp, 3 cans. 2 cks.	
Christiania, 1 cs.	
Copenhagen, 8	
Gothenburg, 1 bl.	
Hamburg, 1 ck.	
Kurrachee, 4 cs.	

GLASGOW.

Week ending August 3rd.

Acetate of Lime—	
Antwerp, 10 t. 1/4 c.	£90
Acetic Acid—	
Lisbon, 2 t. 14 1/2 c.	£23
Ammonium Carbonate—	
Quebec, 2 t. 16 c.	£73
Ammonium Sulphate—	
Hamburg, 50 t.	£660
Bleaching Powder—	
Calcutta, 25 t. 1 c.	£260
Borax—	
Japan, 2 t. 19 1/2 c.	£88
Castor Oil—	
Brisbane, 1	£26
Caustic Soda—	
Adelaide, 5 t. 4 c.	£52
Chloroform—	
Brisbane, 2 c.	£23
Coal Products—	
Alizarine Oil	
Lisbon, 2 t. 16 1/2 c.	£46
Aniline Dyes	
Calcutta, 1	£22
Benzol	
Hamburg, 15 dms.	£175
Pitch	
Quebec, 17 t. 8 c.	£55
Rotterdam, 257	179
Gothenburg, 75 10 1/2	200
New York, 34 11	53
Christiania, 10	15
Hamburg, 69 cks.	£13 10.
Tar	
Calcutta, 34 t. 17 1/2 c.	£438
Hamburg, 100 brls.	42
Danzig, 1,204	437
Tar and Pitch	
Madras, 1	£53
Tar Oil	
Hamburg, 5 cks. 42 brls.	£27
Cottonseed Oil—	
Danzig, 5 brls.	£22
Dried Blood—	
Rouen, 30 t. 3 c.	£245
Dyestuffs—	
Extracts	
Melbourne, 2 t. 5 1/2 c.	£111
Montreal, 2 19	83
Fustic	
Melbourne, 1 t. 4 1/2 c.	£11
Indigo (Patent)	
Adelaide, 1 t. 3 1/2 c.	£40 136.
Melbourne, 1 11 1/2	£60
Logwood	
Quebec, 9 t. 17 1/2 c.	£73
Adelaide, 6 18 1/2	81
Oporto, 2 5	20
Glucose—	
Cape Colony, 2 t. 5 1/2 c.	£30
Iron Oxide—	
Montreal, 2 t. 10 c.	£49
Lead Acetate—	
Quebec, 1 t. 12 1/2 c.	£42

Linseed Oil—	
Cape Colony, 1 t. 2 1/4 c.	£27
Singapore, 1	23
Hong Kong, 3 9 1/2	£80 138.
Frementle, 1	£28
Adelaide, 2 2	42
Quebec, 2 16	73
Paint—	
St. John's, N. F. 1 t. 15 1/2 c.	£31
Halifax, 2 15 1/2	40
Singapore, 77	
Hong Kong, 72	
Calcutta, 2 1	40
Adelaide, 1 4 1/2 c.	£70 195.
New York, 1 4 1/2 c.	£26
Painters' Colours—	
Hamburg, 1 ck.	£4
Paraffin Wax—	
Hamburg, 60 cs. 30 bgs.	£208
Potash Salts—	
Sydney, 6 t.	£710
Quebec, 1 1/2 c.	£65
Potassium Bichromate—	
Calcutta, 9 c.	£20
Rouen, 10 t. 14 1/2	180
Montreal, 3 6	131
Gothenburg, 10 1 1/2	385
Antwerp, 1 4 1/2	40
Hamburg, 2 cks.	40
Potassium Nitrate—	
Quebec, 1 t. 1 1/2 c.	£21
Potassium Prussiate—	
Rouen, 5 t. 7 1/2 c.	£321
Rosin Oil—	
Amsterdam, 26 brls.	£52
Salt—	
Brisbane, 435 t. 12 1/2 c.	£399
Sheep Dip—	
B. Ayres, 16 c.	£24
Soap—	
New York, 6 t. 7 c.	£113
Soda Ash—	
Philadelphia, 50 t.	£188
Soda Crystals—	
B. Ayres, 4 t. 5 c.	£13
Sodium Bichromate—	
Rouen, 5 t. 1 1/2 c.	£160
Montreal, 5 1	165
Antwerp, 13 17	451
Sulphuric Acid	
Colombo, 10 t. 6 c.	£54 105.
Madras, 9 3 1/2	57
Tallow—	
Antwerp, 2 t. 15 c.	£70
Yarnish—	
Hong Kong, 40 gals.	£21
Japan, 12 1/2 c.	24
White Lead—	
Halifax, 2 t. 2 1/2 c.	£24

TYNE.

Week ending July 29th.

Alkali—	
Rotterdam, 2 t. 1 c.	
Savona, 26 14	
Ammonium Carbonate—	
Naples, 1 c.	
Ammonium Sulphate—	
Valencia, 50 t.	
Antimony—	
New York, 45 t.	
Montreal, 5	
Copenhagen, 10 c.	
Arsenic—	
Kotka, 5 t. 10 c.	
Leghorn, 1 2	
Catania, 19	
Asbestos—	
Rotterdam, 1/2 c.	
Barytes—	
New York, 120 t. 5 c.	
Blanc Fixe—	
Montreal, 1 t. 18 c.	
Bleaching Powder—	
Kotka, 20 t. 3 c.	
Norrkoping, 62 17	
Hamburg, 55 1	
Antwerp, 92 6	
New York, 14 19	
Christiania, 12 1	
Bilbao, 5 4 cks.	
Odense, 7 18 c.	
Rotterdam, 85 10	
Copenhagen, 15 1	
Drontheim, 15 1	

Carbolic Acid—

Odense, 14 c.

Caustic Soda—

Helsingfors, 12 t. 9 c.
Wyborg, 2 6
Hamburg, 4 18
Antwerp, 4 18
New York, 116
Genoa, 11 19
Valencia, 10 3
Odessa, 56 2
Copenhagen, 23 2

Magnesia—

Hamburg, 4 c.

Antwerp, 10

Ochre—

Montreal, 1 t. 13 c.

Paint—

Helsingfors, 2 c.
Hamburg, 2 t.
Antwerp, 1
Christiania, 8
Bergen, 17

Painters' Colours—

Naples, 13 c.

Montreal, 158 t. 3

Potassium Chlorate—

Naples, 1 t. 1 c.

Soda—

Abo, 19 c.

Helsingfors, 11 t. 18

Wyborg, 1 12

Antwerp, 9 18

New York, 86 11

Montreal, 7 10

Christiania, 10 1

Odense, 5

Aalborg, 11 8

Nakskov, 5

Rotterdam, 25 4

Constantinople, 7 10

Savona, 2 2

Soda Ash—

Naples, 4 c.

Christiania, 6 t. 11

Gothenburg, 62 17

Sodium Nitrate—

Gothenburg, 1 t. 1 c.

Sodium Sulphate—

Naples, 4 c.

Sulphur—

Gothenburg, 35 t.

Rotterdam, 300

Drontheim, 50

Superphosphate—

Riga, 753 t. 3 c.

Turpentine—

Antwerp, 8 gals.

White Lead—

New York, 6 t.

Copenhagen, 6 14 c.

GOOLE.

Week ending July 26th.

Chemicals (otherwise undescribed)	
Boulogne, 2 cks.	
Ghent, 11	
Hamburg, 42	
Rotterdam, 31	
Coal Products (otherwise undes.)	
Dunkirk, 5 cks.	
Dyestuffs (otherwise undescribed)	
Boulogne, 1 ck. 2 cs	
Ghent, 4 cks. 1 pkge.	
Hamburg, 4	
Rotterdam, 2 1	
Manure—	
Boulogne, 38 bgs.	
Hamburg, 300	
Norre Sundby, 343 t.	
Pitch—	
Boulogne, 42 t.	
GRIMSBY.	
<i>Week ending July 29th.</i>	
Chemicals (otherwise undescribed)	
Antwerp, 1 ck.	
Dieppe, 31 cks. 78 pkgs.	
Hamburg, 6 50 cs.	
Dyestuffs (otherwise undescribed)	
Dieppe, 5 cks.	

PRICES CURRENT.

WEDNESDAY, AUGUST 9th, 1893.

PREPARED BY MESSRS. HIGGINBOTTOM AND CO., 116, PORTLAND STREET, MANCHESTER.

The values stated are F.O.R. at maker's works, or at usual ports of shipment in U.K. The price in different localities may vary.

Acids:—		£	s.	d.
Acetic, 25 % and 40 %	per cwt.	7/-	&	10/6
„ Glacial	„	50/-		
Arsenic S.G., 2000°	„	0	14	6
Fluoric	per lb.	0	0	3½
Muriatic (Tower Salts), 30° Tw.	per bottle	0	0	10
„ (Cylinder), 30° Tw.	„	0	3	0
Nitric 80° Tw.	per lb.	0	0	1¾
Nitrous	„	0	0	1¾
Oxalic	nett	0	0	3
Phosphoric, 1750°	„	0	1	2½
Picric	„	0	1	0
Sulphuric (fuming 50 %	per ton	15	10	0
„ (monohydrate)	„	5	10	0
„ (Pyrites, 168°)	„	3	0	0
„ 150°	„	1	5	0
„ (free from arsenic, 145°)	„	1	6	0
Sulphurous (solution) S.G. 1025	„	3	0	0
Tannic (pure)	per lb.	0	1	2
Tartaric	„	0	0	11½
Arsenic, white powdered	nett per ton	13	15	0
Alum (loose lump)	„	5	2	6
Alumina Sulphate (pure)	„	5	0	0
Aluminoferrie	„	2	10	0
Aluminium	per lb.	0	4	0
Ammonia, Anhydrous	„	0	1	2
„ 880=28°	per lb.	0	0	2½
„ =24°	„	0	0	2
„ Carbonate	nett	„	0	3½
„ Muriate	per ton	22	10	0
„ (sal-ammoniac) 1st & 2nd	per cwt.	37/-	&	35/-
„ Nitrate	per ton	42	0	0
„ Phosphate	per lb.	0	0	10½
„ Sulphate (grey) London	per ton	13	17	6
„ (grey) Hull	„	13	17	6
Aniline Oil (pure)	per lb.	0	0	6
Aniline Salt	„	0	0	5½
Antimony	per ton	45	10	0
„ (tartar emetic)	per lb.	0	1	0
„ (golden sulphide)	„	0	0	10
Barium Chloride	per ton	7	10	0
„ Carbonate (native)	„	3	10	0
„ Sulphate (native levigated)	„	45/-	to	75/-
Bleaching Powder, 35 %	nett	„	8	0
„ Liquor, 7 %	„	3	10	0
Bisulphide of Carbon	„	11	15	0
Chromium Acetate (crystal)	per lb.	0	0	6
Calcium Chloride	per ton	2	5	0
China Clay (at Runcorn) in bulk	„	17/6	to	35/-
Coal Tar Products and Dyes:—				
Alizarine (artificial) 20 %	net per lb.	0	0	8
Magenta	„	0	3	9
Anthracene, 30 % A, f.o.b. London	per unit per cwt.	0	1	2
Benzol, 90 % nominal	per gallon	0	1	4
„ 50/90	„	0	1	4
Carbolic Acid (crystallised 40°)	per lb.	0	0	6¼
„ (crude 60°)	per gallon	0	1	7
Creosote (ordinary)	„	0	0	1
„ (filtered for Lucigen light)	„	0	0	1¼
Crude Naphtha 30 % @ 120° C.	„	0	0	7
Grease Oils, 22° Tw.	per ton	2	5	0
Pitch, f.o.b. Liverpool or Garston	„	1	5	0
Solvent Naphtha, 90 % at 160°	per gallon	0	0	11
„ Lucigen and „ Wells Oils	„	0	0	1¼
Copper	per ton	41	17	6
„ Sulphate	„	15	10	0
„ Oxide (copper scales)	„	40	0	0
Glycerine (crude)	„	13	0	0
„ (distilled S.G. 1250°)	„	43	0	0
Iodine	nett, per oz.	0	0	9
Iron Sulphate (copperas)	per ton	1	12	6
„ Sulphide (antimony slag)	„	2	0	0
Lead (sheet) for cash	„	11	2	6
„ Litharge Flake (ex ship)	„	13	0	0
„ Acetate (white)	„	25	15	0
„ „ (brown)	„	17	10	0
„ Carbonate (white lead) pure	„	20	0	0
„ Nitrate	„	20	0	0
Lime, Acetate (brown)	per ton	5	17	6
„ „ (grey)	„	10	0	0
Magnesium (ribbon and wire)	per oz.	0	2	3
„ Chloride (ex ship)	per ton	2	7	6
„ Carbonate	per cwt.	1	17	6
„ Hydrate	per ton	17	0	0
„ Sulphate (Epsom Salts)	per ton	2	19	0
Manganese, Sulphate	„	17	15	0
„ Borate	per cwt.	2	12	6
„ Ore, 70 %	per ton	4	5	0
Methylated Spirit, 61° O.P.	per gallon	0	2	0
Naphtha (Wood), Solvent	„	0	3	6
„ Miscible, 60° O.P.	„	0	4	0
Oils:—				
Cotton-seed	per ton	23	15	0
Linseed	„	22	10	0
Lubricating, Scotch, 890°—895°	„	7	5	0
Petroleum, Russian	per gallon	0	0	4
„ American	„	0	0	5½
Potassium (metal)	per oz.	0	3	7
„ Bichromate	nett per lb.	0	0	4½
„ Carbonate, 90% (ex ship)	per ton	16	15	0
„ Chlorate	per lb.	0	0	8
„ Cyanide, 98%	„	0	2	0
„ Hydrate (Caustic Potash) 80/85 %	per ton	21	10	0
„ „ (Caustic Potash) 75/80 %	„	20	10	0
„ „ (Caustic Potash) 70/75 %	„	20	0	0
„ Nitrate (refined)	per cwt.	1	2	6
„ Permanganate	per cwt.	3	5	0
„ Prussiate Yellow	per lb.	0	0	9
„ Sulphate, 90 % (ex ship)	per ton	9	15	0
„ Muriate, 80 % (do.)	„	8	0	0
Silver (metal)	per oz.	0	2	8½
„ Nitrate	„	0	2	10
Sodium (metal)	per lb.	0	3	4
„ Carb. (refined Soda-ash) 48 %	nett per ton	5	10	0
„ „ (Caustic Soda-ash) 48 %	„	4	10	0
„ „ (Carb. Soda-ash) 48 %	„	4	10	0
„ „ (Carb. Soda-ash) 58 %	„	4	10	0
„ „ (Soda Crystals)	„	2	17	6
„ Acetate (ex-ship)	„	16	0	0
„ Arseniate, 45 %	„	12	0	0
„ Chlorate	per lb.	0	0	9
„ Borate (Borax)	net, per ton	29	0	0
„ Bichromate	per lb.	0	0	3
„ Hydrate (77 % Caustic Soda) (f.o.b.) net pr. ton	lots	11	0	0¼
„ „ (74 % Caustic Soda)	„	10	10	0
„ „ (70 % Caustic Soda)	„	9	10	0
„ „ (60 % Caustic Soda)	„	8	10	0
„ „ (60 % Caustic Soda, cream) (f.o.b.)	„	8	5	0
„ Bicarbonate	„	6	10	0
„ Hyposulphite	„	6	10	0
„ Manganate, 30%	„	16	0	0
„ Nitrate (95 %) ex-ship Liverpool	per cwt.	0	9	9
„ Nitrite, 98 %	per ton	29	0	0
„ Phosphate	„	15	0	0
„ Prussiate	per lb.	0	0	7
„ Silicate (glass)	per ton	5	7	6¼
„ „ (liquid, 100° Tw.)	„	4	5	0
„ Stannate, 40 %	per cwt.	3	0	0
„ Sulphate (Salt-cake)	per ton	1	4	0
„ „ (Glauber's Salts)	„	1	10	0
„ Sulphide	„	8	10	0
„ Sulphite	„	5	15	0
Strontium Hydrate, 100%	„	8	10	0
Sulphocyanide Ammonium, 95 %	per lb.	0	0	7
„ Barium, 95 %	„	0	0	5½
„ Potassium	„	0	0	7
Sulphur (Flowers)	per ton	8	0	0½
„ (Roll Brimstone)	„	6	10	0
„ Brimstone: Best Quality	„	4	2	6
Superphosphate of Lime (26 %)	„	2	7	6
Tallow	„	27	10	0
Tin (English Ingots)	„	86	10	0
„ Crystals	per lb.	0	0	6
Zinc (Spelter)	per ton	17	12	6
„ Chloride (solution, 96° Tw.)	„	5	15	0

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PARAFFIN OIL AND CHLOROFORM.

FROM among the many articles which contribute to the comfort of the public, the two which head our article stand out very prominently. The reasons which account for their prominence are divers. The suffering which chloroform is capable of allaying causes it to be looked upon as a general benefactor; while the handiness and cheapness of paraffin oil has resulted in its becoming a most useful friend, not only to the poorer classes who are certainly most dependent upon it as a source of light, but also to the upper classes, among whom the use of lamps is increasing in favour.

Nevertheless, like many good friends, these two articles can be the worst of foes, and it is with this side of the subject that we wish to deal just now.

It is almost incredible, but nevertheless it is so, that the people of this country, governed as they are by well-educated men, should continue to suffer from the depredations to which they are subjected, through these two quasi-friends being allowed, nay, almost encouraged, to constitute themselves rampant evils.

The question is one which has been dealt with before in various aspects in these columns, and as regards the frequent deaths which result from the administration of chloroform, it would seem that as much has been said as well can be. The influence of the purity of the chloroform seems to be a debated point, and the members of the medical profession only seem able to console bereaved friends with an explanation which amounts to saying that the cause of death was owing to shortness of breath. So that there seems to be nothing to do but grin and bear it, viewing with complacency the customary formula recording that "death was due to failure of the heart while under the influence of chloroform."

But not so is it in the case of dangers which attend the use of paraffin oil. Here the risks are well-known, and some measures at least taken to control the same when storing or selling this article. In fact, a worthy Parliamentary Committee has sat and heard evidence in order to arrive at a decision as to what kind of oil ought to be recognised as reasonably safe for public consumption.

How successfully the conclusions arrived at and the regulations adopted, actually operate in practice, can readily be seen by picking up an evening paper, when almost invariably the eye is caught with the heading—"Another paraffin lamp accident."

Without taking the trouble to collect all the instances reported in the daily press, sufficient testimony can be had by merely noting local cases. In our own experience in several weeks only, we have come across eight fatal accidents, and this without special vigilance on our part.

It is noticeable that in most cases death has resulted from falling frequently on the stairs) with a lamp in the hand.

LATE ADVERTISEMENTS.

TO TAR DISTILLERS AND OTHERS.

THE Directors of the Gloucester Gaslight Company invite TENDERS for the surplus TAR produced at their Works for One, Two, or Three Years, from the 1st day of October next. The Tar will be delivered into Boats or Barges at the Company's Wharf, on the Gloucester and Berkeley Canal. Offers to be at per ton of 200 gallons, and per ton by weight. Payments, cash monthly. Further Particulars may be obtained on application to Mr. R. Morland, the Company's Engineer. Sealed tenders, endorsed "Tender for Tar," and addressed to the Chairman, Gas Office, Eastgate, Gloucester, to be delivered not later than Wednesday, the 30th day of August inst. The Directors do not bind themselves to accept the highest or any tender.

By order,
WILLIAM E. VINSON,
Secretary.

Gas Office, Gloucester,
Aug. 10th, 1893.

JOHN DANSON & CO., LIMITED, KIRKHEATON COLOR WORKS, KIRKHEATON, HUDDERSFIELD.

TO BE SOLD BY TENDER, the whole of the STOCK-IN-TRADE of Manufactured Colors and Raw Materials, in connection with the above business, amounting at manufacturer's cost prices to the sum of £1,755 0s. 2d.

THE STOCK will be sold in one lot at a discount off cost, or for a fixed sum may be viewed at the works, Kirkheaton, near Huddersfield, on the 28th, 29th, and 30th days of August, between the hours of 9 a.m. and 5 p.m.

TENDERS to be marked, "Tender re John Danson & Co. Limited," and delivered to the Receiver and Liquidator, Mr. JOHN F. DYSON, of 24, Queen-street, Huddersfield, Chartered Accountant, on or before 3 o'clock, p.m., on Thursday, the 31st day of August, at which time the tenders will be opened.

For form and Conditions of Tender, with abstract of particulars, apply to J. Freeman Dyson & Co., Chartered Accountants, 24, Queen-street, Huddersfield, and 20, Commercial Buildings, Park Row, Leeds.

The above Works are to be sold, together with all fixed and loose plant, or will be let; the loose effects to be taken at a valuation. For plans and cards to view, apply as above.

Advertisements.

Prepaid Advertisements of Situations Vacant, Premises on Sale or To be Let, Miscellaneous Wants, and Specific Articles for Sale by Private Contract are inserted in the *Chemical Trade Journal* at the following rates:—

10 Words and under..... 2s. 0d. per insertion
Each additional 10 words..... 0s. 6d. "

Advertisements of Situations Wanted are inserted at one-half the above rates when prepaid, viz.:—

10 Words and under..... 1s. 0d. per insertion
Each additional 10 words..... 0s. 3d.

Advertisements intended for insertion in the current week's issue should reach the office by **Wednesday morning** at the latest.

Incidentally, attention might here be drawn to the custom of nowadays enlarging the rooms of small houses by making the staircase as narrow as possible, so narrow, in fact, as to be nothing but a flight of stairs wedged in between two walls, their being no room for a hand-rail of any sort. Consequently when a slip is made, it is almost inevitable that the bottom is reached before the fall can be broken. We could quote numerous instances of the dangers which attend these stairs, but will only add that in a works or factory the inspector compels a hand-rail to be put up by the private individual, to provide against accident, in cases where an accident is much less likely to happen; but perhaps it would be too much to expect corporate bodies to protect the public by making a somewhat similar proviso when passing plans of cottage houses.

To return to our subject, however, in the case of accidents with paraffin lamps, there seems to be an idea that the oil cannot be at fault, but that the fault lies with the lamp.

The very inspectors under the Petroleum Act have made statements to the effect that in London, at any rate, accidents must be due to the lamp being of faulty construction, because "no explosive oil comes to London now."

In the face of the scientific evidence showing that the flash point now in vogue is dangerously low, and statements such as the above, we think there is every reason for an effort being made to obtain a further hearing and discussion of the flashpoint question. The matter was taken up last session by the Scottish Section of the Society of Chemical Industry, and efforts are being made, we believe, to get the matter in fit shape for action this coming session.

Apud this matter we publish in another column some suggestions for preventing accidents, recently propounded in part by those who had a considerable share in the establishment of the present flashpoint. Good as the suggested precautions are, they do not touch the root of the evil; and we have before us, as we write, a case in which a fatal accident resulted from extinguishing a lamp in the very way which is recommended.

This question is not done with yet; and we trust we shall see the time when we shall be able to record that the wish, already thrown out by us, has been fulfilled, and that the Government has given an answer different to the hitherto customary reply, that "there are not sufficient grounds for altering the existing flashpoint."

THE RIBBLE JOINT COMMITTEE.

THE Ribble Joint Committee held a meeting at Preston, on Monday last, under the presidency of Mr. Fair. The Inspector, Mr. Naylor, reported that the notice had been given to proceed against the Chorley Corporation. He also stated that the Nelson Corporation would not efficiently purify the sewage of that town, and sewage was still turned into the river and its tributaries by other local boards. At the request of the medical officer for Lytham he had twice visited the Lizard Brook within the last two months, and found it on both occasions in a filthy condition. The Lytham Corporation had undertaken to put down precipitation tanks. It was decided that notices to take legal proceedings be issued against Messrs. Henry Bury and Co., soap manufacturers, the Globe Chemical Company, and W. Metcalf, tar distiller, all of Church, and it was resolved to authorise the clerk to take action against manufacturers who tipped solid refuse into rivers or canals after due notice.

A deputation was received from Parbold (near Wigan) Parochial Committee complaining that for the last twenty years a deposit was laid in connection with the "blue billy" from the Liver Chemical Works at Liverpool. The liquid polluted the Douglas, and was injurious to health. They also complained that foul matter came from an overflow pipe from the Wigan Sewage Works into the river Douglas. It was resolved to draw the attention of the Inspector of

Alkali Works to the nuisances complained of.—A deputation was received from the Chorley Town Council with the object of staying proceedings against that authority with regard to the pollution of the river at that place. The Chairman pointed out that the analysis of the effluent showed 87.5% of solids, and this was the best answer he could give. They did not want to harass any authority, but the pollution of the river must be stopped.—The Rev. R. Fletcher said that the river at the place named was as black as ink and lumps of solid sewage as big as his hand were floating down. He saw a cow drinking there; someone must drink the milk from that cow, fever would probably result, as there was no other place for the cow to drink.—It was resolved that the inspector again visit the place and report.—A deputation, consisting of the Mayor and Town Clerk of Clitheroe, was here introduced, and asked the committee to stay proceedings, and not force the town council to make a sewage scheme. The Mayor said that many of the large ratepayers of the town objected to a scheme being made. They were hurrying on with the present works as quickly as possible, and every effort was being made to meet the requirements of the committee.—It was resolved to withdraw the proceedings against the Clitheroe Corporation on payment of costs.—On the motion of Mr. Satterthwaite, seconded by Mr. Lightbown, the minutes of the Finance Committee granting an increase of salary from £250. to £400. to the inspector (Mr. W. Naylor) were confirmed.—In accordance with notice, Mr. Fair moved, and it was resolved that a committee be appointed to collect statistics and information with regard to the estuary of the Ribble, and report as to the advisability of approaching the Local Government Board for a provisional order to include that district in the committee's jurisdiction.

THE MERSEY AND IRWELL JOINT COMMITTEE.

A LARGE mass of business, important but of a dreary nature, which proved very trying in the tropical weather which prevailed, came under the consideration of the Mersey and Irwell Joint Committee at their meeting on Monday last. Thirteen firms, who were alleged to be offenders in the matter of river pollution, appeared before the Committee in response to notices served upon them under a section of the Mersey and Irwell Joint Committee Act, 1892.

Amongst them were Messrs. William Rumney & Co., Stubbins, Ramsbottom, for whom Mr. Samson, solicitor, made a statement in defence, whereupon Mr. V. K. Armitage objected to a solicitor appearing in the matter, and was supported in his contention by Alderman Walmsley.—Mr. Samson maintained his right, but eventually it was decided that Mr. Samson should not take any part in the discussion. Thereupon the members of the firm declined to give any information in the matter. Mr. Samson then withdrew, and it was finally decided that the firm should be proceeded against.

These inquiries occupied the committee two hours, and Mr. Groves suggested that as there were about 200 manufacturers and others to be dealt with, the time of the Joint Committee might be saved by relegating a good deal of the work to a sub-committee.—The Clerk (Mr. F. C. Hulton) said it had to be done by the Joint Committee.—Alderman Walmsley suggested that special meetings be held so as to further the work, and it was arranged that a special meeting should be held on the 18th September, to follow the ordinary meeting on September 4.

The following report was submitted by the Chief Inspector and approved:—I beg to report on the following cases: Chadderton.—Population, 22,087; ratable value, £84,521 5s. The intercepting sewers are in course of construction, but the outfall works have not been begun. Denton and Haughton.—Population, 14,000; ratable value, £47,263. The plans have not yet been sent up to the Local Government Board. Marple.—Population, 4,800. The plans are before the Local Government Board. I beg to lay before you a list in diagram form, showing the present position of each authority in the watershed. With the exception of Bury, the county boroughs which were in default have all got their schemes past the Local Government Board stage, and the non-county boroughs—with the exception of Macclesfield—have all got them submitted. Progress is necessarily slow, especially when, as in many cases, not even the land for works had been bought. The condition of the water in the Ship Canal is still the subject of complaint, and an influential meeting has been held in Salford to protest against the nuisance caused by the stench which arise from the canal and docks. The resolutions passed at the meeting were in favour of deodorising the water, and this is a possible way of effecting an immediate remedy. I would, however, point out that the work which you have in hand is more for permanent improvement in the future, and your powers do not extend further than this. I have received complaints as to the condition of the stream at Leigh, and of the Fallowfield and Platt brooks; also the pollution of the river near Tonge Bridge, by dye water from Mr. Taylor's dye works, has been brought before the notice of the committee. These matters have been dealt with and reported on by the sub-committees. Three samples of

from Salford Sewage Works were submitted to the sub-
 . These samples were putrifying on the third day, which
 t the effluent was not fit to be turned into the river.—Mr.
 Walmsley here sadly confirmed this statement, three samples
 had himself taken on the 10th, 11th, and 12th having turned
 . He continued, however, "But by the addition of another
 his result has been obtained," proudly brandishing a large
 distinctly clear "converted" sewage, which, he asserted, was
 without "bouquet." They were using the same process
 ring the last two months (Lockwood's), with the addition of
 and this appeared to have eminently satisfactory results.
 tation, consisting of Mr. Knox, Colonel Haworth, and Dr.
 chell, attended before the committee on behalf of residents
 Isall district of Salford, and complained of the foul condition
 er in the Ship Canal Docks. The stench, they said, was
 e. There were 114 acres of putrid water in the docks.
 r way the wind blew it carried an intolerable stench with it,
 pecially bad after rain. The use of a dredger and sub-
 eposits of the matter dredged, which consisted largely of solid
 ught down by the river also added to the nuisance. The
 n, while not only desiring to see the causes of the stench
 asked whether the water now in the docks could not be
 harmless by the use of chemicals. The chairman said he
 ey had a very good case against the local authorities, but he
 the Joint Committee could not do much for them. Dr.
 said there had been an increase in the death rate, and there
 eases of diarrhoea than usual among the people in that part
 nearest the docks. The Chairman pointed out that the
 re lately had been excessively high, and there had also
 scarcity of water which might have been contributory
 o an increase of sickness. He would, however,
 id the deputation to push the local authorities in trying to
 he bad odour.—Alderman Walmsley said he quite sympathised
 deputation. Of course, the Ship Canal Company had great
 t stake, and the stopping of the dredging would mean a loss
 o. a week to them, so that the Canal Company, seeing that
 not really the cause of the stench, were also to be sympathised
 a member of the Salford Corporation, he would do what
 with regard to the deposits of the dredger.—Mr. V. K.
 said people outside would remember that the Joint Com-
 d not represent the Ship Canal, but two counties.—Colonel
 commented upon the importance attaching to the subject
 before the committee by the deputation.—Mr. Groves said it
 known that Salford in no way caused the nuisance, inasmuch as
 effluent entered the canal at a point in the canal below the
 The Chairman said that by a resolution passed by the Ship
 mpany, on August 8th, Alderman Harwood in the chair, the
 er Corporation, as a temporary arrangement, would be allowed
 eir sewage into the Canal until their new sewage works were
 n, but the Corporation would lose no time in the matter.—The
 n thanked the committee for the courtesy shown them and

MATING ORGANIC MATTER BY MOIST COMBUSTION.

GH there are already many methods of estimating organic
 ter by the moist combustion process, which give more or
 factory results, another modification of the chromic acid
 as been devised by Mr. H. Heidenhain. For his method he
 an $\frac{N}{8}$ solution of bichromate of potassium, and chemically
 huric acid. The apparatus used is the ordinary titration
 . A flask is used for the combustion, however, in the neck
 a piece of glass tubing, bent into the shape of a narrow V
 erted, cold water being circulated to condense the majority
 pour given off during the process. Lastly, a solution of the
 to be examined is taken, which should not be of more
 at $\frac{N}{8}$ strength. The method is carried out as follows:—
 ve cc. of the solution of the substance is mixed with 30
 $\frac{N}{8}$ solution of the potassium bichromate, and then 33 cc. con-
 sulphuric acid are added. The whole mixture is heated on a
 e until it begins to boil. Then the flame is regulated so that
 boils up from time to time. During the heating the return
 is kept in action. Most of the vapours are condensed;
 es of the volume are of no importance. After boiling is con-
 ten minutes the flask is removed from the flame, and the
 chromic acid is determined in the usual manner. I must
 ere that it is not necessary to cool or to dilute the solution
 ation.

THE GAS SUPPLY OF LONDON.

THE quality of the gas supplied to the City of London for the week
 ending August 5th, 1893, was fairly good. According to the
 report of Mr. W. J. Dibdin, chemist and superintendent gas examiner
 to the London County Council, the tests made at the various testing
 stations showed two deficiencies in illuminating power, both of
 which were against the Commercial Gas Co. The following figures
 have been prepared from the report, and show the average composition
 of the gas calculated on the mean test:—

Company.	No. of districts tested.	Illuminating power (in stand. sperm candles).	Sulphur. Grains in 100 cb. ft.	Ammonia. Grains in 100 cb. ft.	Sulphuretted hydrogen.
		Mean average.	Mean average.	Mean average.	
Gas Light and Coke Co.	14	16'40	9'25	0'39	Nil.
South Metropolitan Gas Co.	6	16'66	9'65	0'63	Nil.
Commercial Gas Co.	2	16'25	7'35	0'5	Nil.

The standard gas supplied by these companies should have an
 illuminating power of 16 sperm candles, and contain not more than 22
 grains of sulphur and 4 grains of ammonia per 100 cub. ft. of gas, on an
 average of three days, with a pressure of one inch between sunset and
 midnight, and six-tenths of an inch between midnight and sunset.

A THERMOMETER FOR HIGH TEMPERATURES.

I N our columns a short while since (No. 322) reference was made to
 a series of experiments which had been made with a Baly and
 Chorley thermometer. As this thermometer fills a decided want for
 those who have to do with distillations at a high temperature, it has
 naturally attracted considerable attention in interested circles. We
 have, therefore, in the interest of our readers taken the trouble to
 ascertain further particulars about this thermometer, and have
 succeeded in obtaining the following further information, the utility of
 which is enhanced by the facts having been obtained direct from one
 of the joint inventors and makers.

These thermometers are in size and appearance almost exactly similar
 to an ordinary mercurial thermometer, but they are filled with a sodium
 and potassium alloy which will bear an extremely high temperature without
 any alteration. The graduation commences at 50° C., the range being
 limited by the softening point of the glass. The latter is of a specially
 hard kind, the softening point being 650° C. The thermometers may,
 therefore, be used with safety to a temperature of 600° C., *but must*
then be handled with great care, as the bulb is of necessity red hot.
 The greatest accuracy is observed in the graduation, the higher points
 being fixed by immersing the bulbs in the vapours of boiling sulphur
 and other substances. Each thermometer is subjected to a thorough
 test of high temperature for several days. It is evident, therefore, from
 their nature that both the stem and bulb of these thermometers should
 be heated with care before taking very high temperatures, and likewise
 allowed to cool with equal care.

As already mentioned the appearance is almost identical with that of
 an ordinary thermometer, the only difference being the colour of the
 bulb which is red, owing to the action of the alloy on the glass. As
 soon as the red coating has been formed however, it of itself protects
 the glass from being further acted upon by the alloy, and so prevents the
 thermometer altering. Every precaution is taken to make them accurate,
 as they are compensated so that the pressure inside the instrument is
 equal to that of the atmosphere when the bulb is red hot, so that there
 is no risk of the bulb changing in volume.

The calibration is also conducted with great care, the coefficient of
 expansion being quite constant. In fact, the reliability of every
 thermometer is assured, as each one is made and tested by the origin-
 ators themselves before they are sent out to the public. Consequently
 chemists and others can feel satisfied that as the instrument is only to
 be placed in the hands of those acquainted with science, they also
 have an instrument prepared with scientific delicacy and will treat it
 accordingly, not attempting, as in one case we have heard of (the
 thermometer having been broken) to wash the alloy with water,

THE PRODUCTION OF CHLORINE FROM MANGANESE DIOXIDE AND NITRIC ACID.

By G. LUNGE AND C. PRET.

(Continued from p. 35.)

WE wished finally to convince ourselves how far the regeneration can be carried when pure nitrogen peroxide (NO_2 or N_2O_4) is employed, and therefore made a special set of experiments in this direction. Pure nitrogen peroxide was prepared in the liquid state and weighed off in thin glass bulbs. These were then placed in a flask provided with a ground glass stopper, through which passed a tap-funnel; this apparatus was then connected with a ten-bulb tube lying in a trough of water, followed by five wash bottles partially filled with water, a ten-bulb tube filled with an acid solution of permanganate and two wash-bottles of the same, and finally a flask filled with water coloured with litmus solution which was connected with the vacuum pump. The whole apparatus is therefore filled with air, which is first of all put under somewhat diminished pressure by means of the pump, so as to make sure that the current of gas really passes through the various washing flasks. The thin glass bulb containing the nitrogen peroxide is then broken by shaking the flask and a current of air admitted by opening the tap of the funnel, the vacuum pump being kept in action at the other end. The nitric acid should be all absorbed by the water, and the nitric oxide by the permanganate (the efficacy of the absorbing agents being checked by the litmus solution, which is, of course, turned red if any trace of acid escapes absorption).

After breaking the bulb a very gentle current of air is at first maintained, which is afterwards increased in order to drive the whole

in the fourth, fifth, and sixth wash-bottles had already become slow, amounting to only about 1% in each, but we should have been able to recover more acid by increasing the number of bottles, whereas in the actual experiments from 4 to 11% of generated oxide was left.

We must, however, conclude that the oxidation of nitric acid goes on much slower than that of nitrous acid and nitrogen oxide, and requires a greater surface of contact than can be easily supplied it in the Bombonnes; so that, for this purpose, it is better to use the "Plate Tower," constructed by one of us.

The temperature of the first absorber acts, as we have seen, decidedly upon the amount of acid contained in it, but has very little effect upon the total amount produced. This is almost as great as the temperature is allowed to rise to 30°C ., as when it is maintained at 20°C .; only above this point does the yield become decidedly affected. It must be remembered that the heated gas was cooled down in the following wash bottles, which may possibly account for the favourable result. As regards working on the large scale, it is concluded that cooling below the ordinary temperature, which is a costly process, has no useful end. The part of the condensing apparatus, coming next to the evolution flask, may even be allowed to rise above the temperature of the surrounding air. On the other hand, the more remote portions of this arrangement must be kept cool, which will probably be sufficiently well done by sprinkling with water. A better arrangement than we could use in our experiments, for instance, a "Plate Tower," much less oxide of nitrogen would be than in our work.

The increase of the amount of air or water in Nos. 9 and 10 has an important effect upon the amount of regeneration.

TABLE III.

Exp.	N_2O_4 used grains	Temperature of first absorber.	% N_2O_4 Regenerated in Water as HNO_3 .						Total NO as % of N_2O_4 .	Total HNO_3 as % of N_2O_4 .	Time. of Exp. Hours.
			I -80 c c.	II. =50 c c.	III. =50 c c.	IV. =50 c c.	V. =50 c c.	VI =80 c c.			
1	0.504	20°	79.6	3.2 30 cc	3.6	2.6	..	..	11.0	100.0	4½
2	0.411	3°	83.5	3.7	1.8	1.6	..	..	9.7	100.3	4
3	0.7695	30°	74.0	7.9	3.3	2.7	1.2	..	10.5	99.6	4
4	0.556	40°	74.93	8.78	3.0	1.51	0.78	..	6.2	95.2	3½
5	0.494	40°	75.6	9.3	3.5	1.7	1.0	0.6	7.0	98.7	3¾
6	0.413	30°	80.0	6.7	2.2	1.0	0.5	0.9	6.7	98.0	3
7	0.576	20°	80.6	5.1	2.8	1.8	1.4	1.3	6.0	99.0	3
8	0.605	3°	87.6	2.95	1.4	0.8	0.6	1.05	4.2	98.6	3
More air } 9	0.917	20°	78.3	6.2	3.7	2.4	1.3	1.6	6.14	99.64	2
More air } 10	0.805	18°	80.85	6.6 100 cc	3.0 100 cc	1.7 100 cc	0.95 100 cc	1.1	5.6	99.8	2

of the gas out of the evolution flask into the absorption apparatus. The contents of each washing apparatus is then separately titrated, so as to obtain an idea of the rate at which the regeneration takes place. Table III. gives the results of these determinations in detail, along with the duration of the experiment and the temperature at which the first bulb tube for absorbing the nitric acid was maintained. This was done, and a series of differing temperatures employed, because it is known by experience that the regeneration does not take place so completely when the apparatus gets too warm. In experiment No. 9, more air, and in No. 10 more water was employed than in the others, in order to ascertain the effect of these modifications. We see from this table that a loss of oxides of nitrogen does not take place. In experiment No. 4 the temperature was apparently so high that several additional absorbing apparatus for nitric oxide should have been used. We see, however, that the conversion of the nitrogen peroxide into nitric acid is by no means a complete one, however much water and air are employed. By far the greater part of the acid is converted in the first absorbing vessel, and the lower the temperature of this the greater the amount which it takes up. At 20°C . about 80% of the oxide is regularly converted into acid in this vessel, and this amount was once obtained even at 30°C . That the acid formed was really nitric, and not to some extent nitrous acid, was shown by the facts that it was always perfectly colourless, and that nitrous acid could not have existed in such a strong current of air. The regeneration of the remaining 20% then proceeded exceedingly slowly in the wash-bottles, which must act like the "Bombonnes" or "Touries" of the ordinary apparatus, although in our arrangement the action must be better than that of the Bombonnes, since the gas bubbles had to pass through the water, whilst in the latter they only pass over its surface. The action

THE ANTHRACITE DEPOSITS OF ROUM

By A. O. SALIGNY.

THE principal deposits of anthracite are found in Roumanian Skéla and Badeanca valleys. The first deposits were found as far back as 1867, samples at the time being exhibited at the Exhibition in that year. It was much later, however, before these deposits were really opened up; what may be considered the first actual step in this direction being made by an engineer of the name of Reiz in 1889.

Skéla Anthracite.—The rocks in the neighbourhood of these are chiefly argillaceous schists. The age of the deposits has been definitely ascertained, the testimony put forward by I. Stefanescu differing from the conclusions of Dr. Aghiceanu. The author's attention was first drawn to the matter by being requested to analyse a mineral (found in the neighbourhood) which possessed appearances of anthracite. The following were the results obtained:

Water	6.00
Volatile matters	3.10
Fixed carbon	90.29
Ash	0.61
	100.00
Sulphur in ash	0.05%
Volatile sulphur	0.37%
	0.42%

three years later, however, some samples, taken from a considerable quantity of the anthracite found in this district were examined by the author. He found it to possess a black shiny appearance, to be compact, capable of scratching salt, though it was itself scratched by spar. Its specific gravity was noticeable, being 1.78. When heated in a muffle at a high temperature it decrepitated violently, and split up into small pieces or laminae. It burnt with difficulty and without flame, leaving a small white ash. The analysis of six samples yielded an average composition as follows:—

Water	6.23
Volatile matters	3.84
Fixed carbon	88.37
Ash	1.56

100.00

This shows that while containing a considerable quantity of water it is a small ash. Its composition in the dry state would be:—

Volatile matters	4.10
Fixed carbon	94.24
Ash	1.66

100.00

The anthracite of Skéla is not rich in sulphur, the mean of three analyses of samples, taken from a bulk of about 30 kilograms, gave 0.04%, of which 0.04% was left in the ash, and 0.31% was volatile, therefore noxious. An analysis showing the elementary composition of this anthracite, made on two samples representing 10 kilograms each, gave the following results:—

	No. 1.	No. 2.
Water (hygroscopic)	5.20%	6.54%
Carbon	88.60%	90.04%
Hydrogen	0.77%	1.31%
Oxygen and nitrogen	4.05%	0.58%
Sulphur	—	0.33%
Ash	1.38%	1.20%

100.00

100.00

Badeanca Anthracite.—Of this anthracite the author had only such personal knowledge as he could gather by the particulars given him about to analyse the samples sent to him. The deposit in this case is a true anthracite, and not lignite like the deposits at Boteni. In appearance it is similar to the anthracite of Skéla, but in other ways not so good. Its specific gravity is less than that of the former. It burns with more difficulty, leaving a brown ash. Further it contains more sulphur, as is shown by the following analysis:—

Water	3.77	8.41
Volatile matter	4.64	
Fixed carbon	89.49	91.59
Ash	2.10	

100.00

Total sulphur

1.70%

An analysis showing the elementary composition of this deposit gave the following results:—

Water	3.77%
Carbon	90.40%
Hydrogen	1.70%
Oxygen and nitrogen	2.03%
Sulphur	2.10%
Ash	2.10%

100.00

While the sulphur is higher the water is lower. A comparison, however, of this sample, with the mean of samples Nos. 1 and 2 from Skéla, shows a close relationship, pointing to the probability of the two deposits being outcroppings of the same bed of anthracite. The following table shows the comparison:—

	Means of Nos. 1 and 2. Skéla.	Badeanca.
Carbon	96.30	96.05
Hydrogen	1.12	1.80
Oxygen and nitrogen	2.57	2.15

Being the distance between the two deposits, this comparison is enough to show an interesting analogy between the samples.—*Soc. Sci.-Bucuresti.*

PETROLEUM IN ROUMANIA.—It is announced from Bucharest that Roumanian petroleum concerns have constituted themselves into a syndicate, in order to prevent a further decline in the price of petroleum, at the same time to better cope with Russian competition.

The World's Columbian Exposition.

ENGLISH INDUSTRIES AT CHICAGO.

(Specially Communicated.)

THE UNITED ALKALI CO., LIMITED.

THE United Alkali Company, Limited, make a very fine display at the Chicago Exposition. They have two exhibits, placed in a most prominent position in the British section, close to the main or south-west entrance to the Manufacture and Liberal Arts building. The first of these exhibits is a very handsome show case, made of plate glass and solid mahogany, inlaid with various lighter coloured woods, containing specimens of the various articles manufactured by the United Alkali Company, most artistically arranged. In this case they exhibit samples of bleaching powder, of caustic soda of various strengths from 60 to 77 per cent., and also their specially prepared powdered 98 per cent. caustic soda. Soda ash from 25 to 58 per cent, produced both by the "Le Blanc" and "Ammonia" process, soda crystals, and bicarbonate of soda.

Samples of chlorate of soda, chlorate of baryta, and chlorate of potash are also shown; the large iridescent crystals of this latter article being very beautiful.

There are specimens of caustic and carbonate of potash; very fine sulphur, recovered as a by-product from the "Le Blanc" waste; also hyposulphite of soda, and silicate of soda.

The following special articles for paper makers' use are shown, viz., sulphate of alumina free from iron, pearl hardening or crown filler, and a special quality of acid resisting ultramarine blue. In addition, samples of sal ammoniac, muriate and sulphate of ammonia, chloride of magnesium and calcium, sulphide of sodium, chromic acid, besides various kinds of soaps, and manganate of soda, a special disinfectant for oxidising and deodorising sewage from cities on a large scale, are all exhibited.

Ingot copper is shown, the United Alkali Company being large copper smelters, as well as being about the largest chemical and alkali manufacturers in the world. They are also large makers of sulphate of copper. The large bright crystals which they show of this article are particularly fine, and judging from appearance are remarkably pure, and therefore, very suitable for fine dyeing and telegraphic purposes.

Purple ore bricks, made from the residual oxide of iron obtained in the wet copper process constitute another item. These bricks, we understand, are used by steel manufacturers in the "open hearth" process, and are found to be very suitable for this purpose, owing to their freedom from phosphorus and sulphur, besides being more suitable than the best hematite ore, owing to their solid nature, and freedom from dust or small pieces.

Specimens of sulphuric and muriatic acids, both commercial and pure qualities, and of all strengths, are exhibited. The United Alkali Company are by far the largest manufacturers in the world of these acids, as they produce them so largely for their own consumption, as well as for sale.

Finally, there are exhibits of various kinds of fertilizers, soaps, and the different qualities of salt produced at the Fleetwood salt works of the United Alkali Company. Since their purchase three years ago, the Fleetwood salt works have been largely extended, their geographical position giving them an advantage over Cheshire for the export and coastwise trade. In addition to the salt works, very extensive "ammonia" soda ash works are also in course of erection at Fleetwood.

The second exhibit of this company is a large trophy or pyramid, built up with packets of pure salt put up for household use at Fleetwood, and the various small packages or cans of chloride of lime, powdered caustic soda, caustic and carbonate of potash, which are manufactured and put up at Greenbank works. These articles are specialties for making soap in small quantities without boiling, for wool scouring, disinfecting, and laundry bleaching. The cans are of all sizes, from a quarter of a pound up to fifty pounds, and each one is wrapped with a coloured label and directions for use, which adds materially to the *tout ensemble*.

The small cans of chloride of lime here exhibited struck us as specially suitable and handy for household disinfection of drains, etc., during this summer, when special care in all sanitary arrangements will be necessary owing to the threatened advent of cholera.

This large trophy, with the red, white, and blue labels on the cans, makes a striking display, and from an advertising point of view it may be useful, but it by no means shows the artistic taste exhibited in the arrangement of the specimen case of articles manufactured by the United Alkali Company, which we described at first.

Both the exhibits are in charge of an attendant in uniform, who is very civil and speaks French fluently.

The United Alkali Company also have evidently given much thought and attention to their exhibition book, or catalogue of the numerous articles manufactured by them, which is presented by the attendant at their stand to any visitors interested in chemicals. The outside cover, both front and back, is tastefully got up in gold and colours, and represents the different trade marks of the various firms, who, by their amalgamation constitutes the United Alkali Company, the clasped hand trade mark of the United Company forming the central design. The book contains a short description of every article manufactured, together with some very useful directions for making soap for wool scouring, in small quantities; the use of chloride of lime for disinfecting and laundry bleaching, and for the employment of manganate of soda as a disinfectant. The catalogue contains a few figures as to the number of men employed by the company at their different works, the number of locomotives, wagons, steamers and vessels, etc., owned by them, which gives a good idea of the magnitude of this the largest manufacturing concern in the United Kingdom, if not in the world.

IMPORTS AND EXPORTS FOR JULY.

THE Board of Trade returns for July show that the improvement visible last month, though small, is still maintained. The exports of chemicals show an increase.

IMPORTS OF FOREIGN AND COLONIAL PRODUCE.

		Quantities.	
		1892.	1893.
Margarine	cwt.	82,574	101,352
Copper ore and regulus.....	tons	24,330	21,674
Hides, dry and wet	cwt.	79,075	89,828
Nitrate of soda	tons	3,281	3,814
Tallow and stearine	cwt.	179,053	141,097
Tin	"	41,715	44,687

EXPORTS OF BRITISH AND IRISH MANUFACTURES.

		Quantities.	
		1892.	1893.
Alkali	cwt.	363,819	352,568
Cement	tons	51,029	42,574
Coal and coke.....	"	2,965,131	2,900,680
Copper, all kinds	cwt.	127,455	116,306
Iron and steel.....	tons	221,894	276,209
Chemical manures	"	29,316	32,824
Oils, seed	"	4,158	5,513
Salt	"	62,581	67,891

Parliamentary Jottings.

SEWAGE SCHEMES.

IN the House of Commons on Thursday, last week, Mr. Mather asked the President of the Local Government Board whether the Board, in sanctioning any scheme for the treatment of sewage by local authorities invariably stipulates (and is required by Act of Parliament to do so) that the effluent must be passed over a certain acreage of land before entering streams or rivers, whatever the degree of purification the effluent may have undergone by chemical or mechanical means; whether the acquisition of such land is in many cases very difficult and costly to the ratepayers; whether some sewage schemes most urgently needed have been delayed in consequence of this stipulation of the Board that land shall be acquired, regardless of the undertaking on the part of local authorities to purify efficiently without land; and whether he will cause an inquiry to be instituted by a Departmental Committee or otherwise into the recent improvements (since the Rivers Pollution Act was passed) in the chemical and mechanical treatment of sewage, where applied and maintained in an efficient manner, with a view to relaxing the present uniform rule as to the acquisition of land in cases where the local authorities will undertake to apply such efficient treatment to the satisfaction of the Board, and subject to penalties which may be imposed by the Local Government Board (if necessary under the authority of Parliament) to prevent any imperfect application of the treatment so sanctioned.

Mr. H. Fowler said it was the invariable practice of the Local Government Board to decline to sanction loans for sewerage works or sewage disposal unless they provided that the sewage should be purified by being passed through land before being discharged into the rivers or streams to which the Rivers' Pollution Prevention Acts applied.

They considered that the requirements of that Act would be contravened unless the sewage was so purified. The Board were fully aware that by means of chemical and mechanical treatment much might now be done to aid in the purification of sewage, and they therefore approved of a very much less area of land being provided when the authority proposed to adopt such treatment, but they were not of opinion that these means alone, without the passing of the sewage through land, were sufficient. The acquisition of land for the purpose referred to was no doubt in some cases attended with difficulty, and it must increase the cost of the scheme. It was also the case that delay had in some cases been occasioned where the sanction to loans had been withheld pending arrangements being made for the acquisition of the land. He had considered the question of instituting an inquiry, but apart from the difficulty of securing the services on such a Committee of men of the necessary scientific and practical knowledge who could give the requisite time for such an inquiry at places at a distance from London, he was not at present prepared to say that such an inquiry was necessary. The inspectors of the Local Government Board in connection with the inquiries which they had to hold with regard to sewerage schemes were carefully watching the processes which were proposed in aid of land, and he could assure his hon. friend that he would not lose sight of the suggestion.

THE USE OF SALICYLIC ACID AS A PRESERVATIVE.

AS the time arrives for the collection of fruits, the question, "How shall we preserve our crop for winter use?" comes up again for consideration. That it is not yet settled to everyone's satisfaction is sufficiently evidenced by the number of questions on the subject which appear every autumn in the papers partly or entirely devoted to domestic interests. A variety of plans are suggested for preventing the fermentation or moulding of fruits and preserves. Thus, some lay great stress, in preserving whole fruits, upon the selection of only the soundest material: upon treating it at once; upon heating it, covered with syrup, in glass vessels, etc. Unfortunately, even when all precautions are taken, the result is by no means always satisfactory. Another practice much recommended at one time was that of pouring chloroform over the fruits and hermetically sealing. This plan seemed to answer very well until it was found that the chloroform communicated a curious flavour to some fruits, which no amount of cooking could remove.

Then, with regard to jams, the same difficulty has been experienced. The proneness of these preparations to change is well known, and attempts have been made to minimise it by a number of devices more or less successful.

In salicylic acid, however, we have a ready means of preventing such loss of material and the consequent annoyance and disappointment. In the proportion of 4 to 8 grains per pint or pound, salicylic acid prevents fermentation and the formation of mould in any saccharine liquid. Fruit juices of all kinds, jams, preserves, and the like can be in this manner kept unchanged for years.

Experiments have shown that apple and pear *compôte* prepared with only a small quantity of sugar (1lb. to each 5 lb. of fruit), after ten months, during which time the vessels had been frequently opened and various portions removed, showed no trace of mould or acidity, or of fermentation. Similarly, cherries and blackberries may be preserved with from one-fifteenth to one-tenth their weight of sugar; in the presence of a small proportion of salicylic acid they keep from one year to another with unaltered taste and quality.

With regard to the manner of applying the preservative, it may be added as it is to the jam in the process of preparation. It is advisable to gradually introduce it in the solid state into the boiling mass with constant stirring, or the acid may be rubbed down smooth with a portion of the fruit juice and then added to the whole. In any case the finished product ought not to show any white flocks.

A peculiar method of preserving with salicylic acid is to pour over the cold uncooked fruit the cold salicylated juice of the same fruit, so that the former is entirely covered. The cold salicylated juice is prepared by pressing out the fruit, heating the juice, adding to every pound 15 grains of salicylic acid, and allowing to cool. In this way fruits, such as cherries, plums, etc., can be preserved through the winter uncooked, so that they are suitable for any and every kind of application, even for use in pies.

The advantages of salicylic acid in the preservation of fruits and fruit preserves may therefore be summed up as follows. If properly applied it is always successful; it does not communicate any unpleasant flavour to the preparations; it is in no way injurious to the consumer, being present only in minute quantities. Salicylic acid specially prepared for such uses is supplied by Messrs. Fuerst Bros., 17, Philpot-lane, E.C.

THE QUANTATIVE DETERMINATION OF BORIC ACID.

By A. K. REISCHLER.

THE author has made a critical comparison of the methods usually employed for the determination of boric acid. The following processes were examined:—1. Weighing as basic borate of magnesium and determining the amount of magnesia in this; 2. Determination of the boric acid by the decomposition of a weighed amount of sodium carbonate; 3. Distillation of the boric acid as methyl ether and weighing as basic calcium salt; 4. Volumetric estimation of the boric acid; 5. Weighing the boric acid as potassium borofluoride; 6. Determination of the boric acid by the loss of weight caused by volatilising the acid as ammonium borofluoride. The experiments have led to the following conclusions:—In every case in which the base of the borate which is being analysed can be weighed as sulphate, it appears to be most advisable to remove the boric acid as ammonium borofluoride, and thus to estimate its amount. This method may also frequently be applied to the estimation of free boric acid. In cases in which this process can not be employed, it seems advisable not to rely on the results of any of the other methods without confirmation; it is better, for example, in the case of a borate, the base of which cannot be weighed as sulphate, to determine the amount of the base by some suitable method, and then to estimate the water of crystallisation as accurately as possible, taking the mean of a number of determinations. In this way the determination of the boric acid by difference is rendered correspondingly more accurate.—*Chem. Zeit.*

Reports of Companies.

SOUTH METROPOLITAN GAS.

A distribution at the rate of 13 per cent. per annum is proposed for the past half-year. The report says that coal cost less in the half-year, but there was a decrease of £9,367 in the revenue from residuals. In order to further the use of gas amongst the working classes the directors have devised a meter which will work upon the "penny in the slot" system, and as they lend the fittings at a rent included in the price of the gas it is anticipated that the new system will lead to a considerable increase in business. They also continue to push the use of gas cooking stoves, with such good results that 25 per cent. of the whole number of consumers now hire a stove from the company. The directors conclude by stating that the profit-sharing system has proved an entire success.

MUNTZ'S METAL.

A half-yearly interim dividend at the rate of five per cent. per annum has been declared.

ENGLISH CROWN SPELTER COMPANY.

The report states that the result of the year's working, including the balance of £1,281. brought forward from last year, is a net profit of £3,902. The heavy and continuous fall in the price of spelter, besides lowering the value of the ores obtained from the company's mines, created a serious commercial loss on the ores purchased under contract, owing to their price being based upon the average rate ruling for spelter previous to their conversion into metal. It also led to a considerable loss in the valuation of the stocks at the close of the year. Owing to these causes the profit earned during the first half of the year was more than neutralised by the subsequent depreciation in values. No further dividend can therefore be paid for that year.

Correspondence.

* * We do not hold ourselves responsible for the opinions expressed by our correspondents.

ANSWERS TO CORRESPONDENTS.

- L. C. C.—You will see that the necessary correction has been made.
 D. AND C. W.—We will make the enquiries you desire. The information is not easy to get, but we think we shall succeed.
 H. K. S.—It was converted into a limited some six months ago.
 S. T.—We were quite correct in our statements. Look again into the matter and we think you will discover your mistake.
 E. S.—The industry you mention is in a very stagnant state. The coal strike may possibly be the cause of it.
 MANUFACTURER.—We would refer you to our Tyne Chemical Report, where you will find the information you require.

Trade Notes.

CHANGE OF ADDRESS.—Messrs. The Lydbrook Chemical Co., desire us to state that the change of address which we reported last week was not correct. The proper address is:—Lydbrook, nr. Ross, Herefordshire not N. Britain as we had it.

ANILINE COLOURS IN CHINA.—Aniline colours are in great demand in China, the colour most called for being scarlet. Shanghai is the most convenient port for sending the required colours to.

MANUFACTURE OF OXYGEN.—A new departure in the manufacture of oxygen gas has been made lately. It consists of several improvements upon what is known as the manganate of soda process. It will be found practically useful in nearly every trade where heat or bleaching power is required. A syndicate has been formed to purchase the invention, and works have been already established at Lambeth.

ESTIMATION OF PHOSPHORIC ACID.—Wavelet has brought forward a method of estimating phosphoric acid, depending upon the insolubility of lead phosphate. The details are as follows: The phosphoric acid is first precipitated by citro-magnesium mixture, the precipitate washed, dissolved in nitric acid, the solution rendered alkaline with ammonia and re-acidified with acetic acid. It is then titrated with a standard solution of lead nitrate, using potassium iodide as an indicator. It gives results which compare well with the uranium acetate method, and has the advantage of being worked in the cold.

COPPER-PHOSPHIDE.—At a recent meeting of the Académie des Sciences, M. Granger read a note concerning the production of copper-phosphide. It is known, he stated, that a bar of white phosphorus, immersed in a solution of sulphate of copper, becomes covered with a mixture of metallic copper and phosphite of copper. He then, by causing the phosphite of copper to act on the red phosphorus in the presence of water in sealed tubes at 130°, obtained pure copper-phosphide. It is a grey, crystallised powder, recalling, in appearance, plumbago. The substance is easily oxidisable, and decomposes under the influence of heat.

DUTCH Madder.—No change has been noticed in the Dutch madder market during the last few weeks. The sales have been for the most part of jobbing quantities for present use. This state of the market, however, has not affected prices very much. The first samples of new madder roots are of a very satisfactory quality, and within a month about ten tons will be ready for shipment. The present quotations are: Fine crop, 55s.; small crop, 48s. 6d. to 51s.; fine ombros, 47s. to 48s.; good ombros, 41s. to 42s. 6d.; small ombros, 35s. to 39s.; regrounds, 24s. to 30s. per cwt., English, free on board Rotterdam, actual tare, cash 1%, discount within 14 days after arrival of goods.

PRODUCTION OF BORAX.—A new method of producing borax has recently been devised. In this process common salt is subjected to the action of crude boric acid, aided by superheated steam. An intimate mixture of the salt and acid is placed in a large clay retort which is then heated to a low red heat, when hydrochloric acid is disengaged in abundance. The heat being slightly increased, steam is next admitted in sufficient quantity to condense the hydrochloric acid by the aid of a refrigerator connected with the neck of the retort, and a speedy and complete decomposition of the salt takes place with the production of anhydrous borax. This, whilst still red hot, is ejected into cold water and allowed to remain for 48 hours to dissolve, after which, by the ordinary routine of crystallisation, it may be obtained from the solution.

CEMENT FOR STEAM PIPES.—Another cement of specially valuable properties for steam pipes, in filling up small leaks, such as a blow hole in a casting, without the necessity of removing the injured piece, has been compounded. The cement in question is composed of 5 pounds Paris white, 5 pounds yellow ochre, 10 pounds litharge, 5 pounds red lead, and 4 pounds black oxide of manganese, these various materials being mixed with great thoroughness, a small quantity of asbestos and boiled oil being afterward added. The composition, as thus prepared, will set hard in from two to five hours, and possesses the advantage of not being subject to expansion and contraction to such an extent as to cause leakage afterward, and its efficiency in places difficult of access is of special importance.

SMOKE PREVENTION IN THE UNITED STATES.—The Legislature of the State of Massachusetts has recently enacted the following law relating to the prevention of smoke:—In cities of over 300,000 inhabitants no person shall after the first day of July in the year 1893 use bituminous coal for the purpose of making steam in boilers in any building, unless the furnace in which said coal is burned is so built, managed, arranged, or equipped, that at least 75% of the smoke from said coal is consumed or otherwise prevented from entering the atmosphere, the degree of suppression being determined by the quantity of such smoke emitted as shown by the density and colour of the issuing smoke, and the length of time which it is visible, the maximum standard of comparison being a continuous discharge of dense, dark smoke during the time the furnace is in active operation."

THE MANAGEMENT OF LAMPS.—In view of the numerous fatal and other accidents caused by petroleum and paraffin lamps, the London County Council have issued a number of suggestions in regard to the construction and management of lamps, founded partly on recommendations by Sir Frederick Abel and Mr. Boverton Redwood, after investigations into the causes of accidents. These suggestions are divided into three groups. The first relates to the construction of lamps, and on this point it is strongly urged that the oil reservoir should be of metal, instead of china, glass, or other fragile material so commonly used, while it is further said that the wick should be enclosed in a tube of thin sheet metal open at the bottom, and reaching almost to the bottom of the oil reservoir. Then it is recommended that every lamp should have a broad, heavy base and a proper extinguishing apparatus. The "heavy base" is an important matter, as tending to prevent the upsetting of lamps, for the upsetting is one of the most fruitful causes of serious accident. Special attention is directed to the management of wicks, and as to extinguishing it is recommended that after the wick has been lowered till there is only a small, flickering flame, a sharp puff of breath should be sent across the top of the chimney, but not down it.

THE SMITHSONIAN INSTITUTE.—This institute in America is offering the following prizes out of the Hodgkins Fund: (1) A prize of \$10,000 for a treatise embodying some new and important discovery in regard to the nature or properties of atmospheric air. These properties may be considered in their bearing upon any or all of the sciences—*e.g.*, not only in regard to Meteorology, but in connection with hygiene, or with any department whatever of biological or physical knowledge. (2) A prize of \$2,000 for the most satisfactory essay upon (a) The known properties of atmospheric air considered in their relationships to research in every department of natural science, and the importance of a study of the atmosphere considered in view of these relationships (b) The proper direction of future research in connection with the imperfections of our knowledge of atmospheric air, and of the connections of that knowledge with other sciences. The essay, as a whole, should tend to indicate the path best calculated to lead to worthy results in connection with the future administration of the Hodgkins foundation. (3) A prize of \$1,000 for the best popular treatise upon atmospheric air, its properties and relationships (including those to hygiene, physical and mental). This essay need not exceed 20,000 words in length; it should be written in simple language, and be suitable for publication for popular instruction. All inquiries as to particulars should be addressed to S. P. Langley, secretary, Smithsonian Institution, U.S.A.

COBALT SALTS FOR PHOTOGRAPHY.—A paper has been read recently before the Paris Academy of Sciences dealing with the utility of cobaltic oxalate (obtained by dissolving hydrated peroxide of cobalt in oxalic acid) for producing photographic prints, owing to its reduction to the cobaltous state by the action of light. The solution is prepared as follows:—A cobaltous salt is precipitated with sodium peroxide; the cobaltic hydrate formed is carefully washed in hot water, collected, and treated in the cold with a saturated solution of oxalic acid; the reaction, which must take place in the presence of an excess of cobaltic hydrate, is finished in several hours, and gives a green solution with which gelatinised paper may be impregnated. Printing is done very quickly. After sufficient exposure the proof is developed by means of a five per cent. solution of potassium ferrocyanide, and fixed by simple washing. The image obtained is pale red. It is intensified and given a more agreeable colour by treating with an alkaline sulphide, which converts the ferrocyanide of cobalt into the sulphide. The chief advantage of the process is its simplicity, rapidity and cheapness.

QUALITY OF CHESHIRE FOOD.—The public analyst (Mr. J. Carter Bell), in his report to the Cheshire County Council, states:—During the quarter ending June 30, 1893, I have analysed 178 samples, viz., 49 milks, 20 butters, 16 cheeses, 9 lards, 12 groceries, 31 spirits, and 41 waters. Of these five were adulterated—namely, four milks and one whisky. The milks were adulterated with 10 and 20 per cent. of water respectively, and two were robbed of their cream to the extent of 20 and 60 per cent. There were ten cases of very poor milk, which could not have come from a dairy of well-fed cows. Some of the lards contained from '2 to '6 per cent. of water, which I see, according to the report from the Local Government Board, some analysts returned as adulterated. This I could not do, as this small quantity of water is purely accidental, and to institute a prosecution for so trivial a percentage is to bring the Act into contempt and to annoy and worry the tradesman. Such a case was brought before a bench of magistrates in the south a few weeks since, who unanimously dismissed it. This small percentage of water would mean a profit of about threepence a hundredweight, and it would cost more than that to put it in and mix it uniformly with the lard. It is pleasing to say that many of the above samples were bought from the refreshment-rooms at the Royal Agricultural Show at Chester, and in no one case was there a sample adulterated, but all were of first-class quality. Even the bread was covered with genuine butter. Many of the cheeses were

deficient in fat, some containing as little as 10 per cent. If it is an offence to sell skim-milk as fresh milk, how much more is it an offence to sell cheese deprived of its fat. Of the 41 waters 20 were good, six were of doubtful purity, and 15 were bad. Total number of samples analysed during the quarter, 178.

FOREIGN REMITTANCES.

Owing to the inconvenience created by the various ways in which foreign subscriptions are remitted, we respectfully beg to inform subscribers that a *Crossed MONEY ORDER* is the most satisfactory method of remitting, both for them and ourselves. In the case of a Money Order, a letter advising us of same should always be sent, otherwise, owing to post-office formalities, much delay in tracing and acknowledging foreign remittances is inevitably entailed in this country.

Market Reports.

TAR AND AMMONIA PRODUCTS.

There is little fresh to record in the benzol market, prices having varied from 1s. 4d. to 1s. 4½d. during the present week. Crude carbolic acid, though in some request, is still flat, which can only be accounted for by the fact that bleaching powder is steadily replacing tar products as a disinfectant. Anthracene remains as already quoted, and the present hot weather has completely stagnated the pitch market, though there is every reason to believe that when the cold weather sets in, the demand for pitch will be very great.

The sulphate of ammonia market shows no signs of change, and business is almost at a standstill for want of supplies. A few second-hand parcels keep changing hands, but quotations are very irregular, and prices may be anything between £14. 5s. and £14. 10s. for prompt delivery. September parcels are already getting equally scarce, which leads to the conclusion that the highest point has not been reached yet. Consumers simply cover their most urgent requirements, and remain in a passive attitude as regards the future. Beckton is nominally £14. 10s., while London, Hull, Liverpool and Leith may be quoted as £14 7s. 6d.

MISCELLANEOUS CHEMICAL MARKET.

In the alkali trade there is a strong demand for all the products for near deliveries, especially in sodas and bleaching powder, to cover requirements of consumers in view of the possible stoppage of production at the alkali works. In consequence of this demand, prices all round are firm. Bleaching powder £8. nett, f.o.r. makers' works, and at this price the requirements are in excess of supply. Caustic soda is meantime unchanged at: f.o.b. Tyne, 77%, £11.; f.o.b. Liverpool: 74%, £10 10s.; 70%, £9. 10s.; 60%, £8. 10s.; cream, 60%, £8. 5s., 10-ton lots and upwards. Soda ash, 1¼d. to 1½d. per degree for Leblanc makes, and alkali, 58%, 1d. per degree. Chlorate of potash remains at 8d., and soda 9d. per lb. with lower prices for contracts. Muriatic acid and vitriol are likely to be in short supply, owing to general stoppages, and there are numerous enquiries in various districts. White powdered arsenic still in good request, and price firm at £13. 15s. nett, Garston. There is rather better demand for brown acetate of lime, and a firmer tendency in price. Acetates of soda steady at £16., c.i.f. Recovered sulphur quiet at £4. 2s. 6d.; roll steady, and not over plentiful for spot delivery, at £5. 12s. 6d. to £5. 15s. per ton. Sulphate of copper in want of buyers, price generally quoted is £15. 10s., f.o.b. Nitrate of soda somewhat slow of sale at 9s. 3d. to 9s. 6d. Carbolic acids firmer, and with the increase of cholera abroad, makers are anticipating higher prices for this article.

REPORT ON MANURE MATERIAL.

There is a fair amount of business doing, and prices all round are well maintained. Home manure manufacturers being bought rather far ahead do not seem inclined to cover their requirements in mineral phosphates further at present, but for the Continent business in 75/80%. Florida rock is being done at 8¼d. per unit, in cargoes c.i.f. to good ports. For Peace River rock 7d. per unit is required, and dried South Carolina River rock is firm at 6¼d.

A River Plate cargo of bones for shipment has been done at £4. 11s. 3d. for good United Kingdom port, and £4. 12s. 6d. is probably closing value. £4. 13s. 9d. paid for a small cargo of Morocco bones, afloat. There is rather less enquiry for River Plate bone ash,

10s., on 70%, is nominal closing value. Nothing under, ex quay Liverpool or Hull, would now buy crushed bones for autumn shipment. £4. 12s. 6d., ex quay Liverpool Glasgow, paid for Bombay bone meal, autumn shipment, and now required. Charring bones are in request at Liverpool, common grinding bones would fetch £4. 2s. 6d. to £4 5s. Nitrate is a shade easier. On spot there are sellers at 9s. 3d. per cwt. nary quality, and at 9s. 4½d. for refined. Due cargoes are s. 10½d. to 9s., and September-November shipments 9s. 3d. ½d. per cwt. is nothing doing in miscellaneous nitrogenous material.

THE METAL MARKETS.

LONDON, WEDNESDAY.—Pig iron inactive. Scotch warrants at 41s. 11d. cash, Middlesbrough 34s 11d. cash, and hematite Copper quiet, but steady: Chili bars, G.O.B.'s and G.M.B.'s at £41. 2s. 6d. to £41. 10s. cash, and £41 12s. 6d. to £42. three Tin, quiet: Straits closed at £78. 7s. 6d. to £78. 10s. cash, s. 10s. to £78. 17s. 6d. three months; Australian, £80. 12s. 6d.; ingots, £85. 10s. to £86. Lead, easy: Spanish, £10. 1s. 3d.; £10. 2s. 6d. Silesian spelter: Ordinary, £17. 12s. 6d. 1s. 8d. Antimony, £37. 10s. Quicksilver: First hands, £6. 5s. shares, quiet: Cape, 1 to 1½. Copiapo, 1½ to 1¾. Libiola, 1. Mason and Barry, 1½ to 1¾. Rio Tinto, 12½ to 13½; 4¼ to 4½; Namaqua, ¾ to ¾.

VERHAMPTON, WEDNESDAY.—Prices of finished and pig firm at a little above the figures last week quoted. Current cludes a number of orders which would have been executed in th of England had it not been for the strike. Staffordshire pigs 6d. for cinder sorts, 43s. to 44s. for part mines, and 57s. for all t blast Tank plates, £7.; boiler plates, £8 to £9.; gas tube 5. 15s. to £6. Galvanised sheets average £11.

SCOTLAND, WEDNESDAY.—Market recovered slightly for Scotch, er departments flat. Scotch done at 41s. 9½d. and 41s. 11d. so at 42s., 42s 2d., and 42s. 1½d. one month; closing with it 41s. 10½d. cash, sellers ask ½d. more. Cleveland done at l. eight days; closing with buyers at 34s. 10½d. cash, and one month; sellers ask 1d. higher. Cumberland hematite with buyers at 44s. 9d. cash, sellers ask 45s. Middlesbrough e closes with buyers at 42s. 9d. cash, sellers ask 43s.

LIVERPOOL OIL AND COLOUR MARKET.

WEDNESDAY.

oil continues quiet, and prices are easy. To-day's value is £2. 15s. per ton for Lagos; olive rules steady, without material n in prices quoted last week. Linseed is commanding higher and seems steady at present position, which, for Liverpool in export casks, is 22s. 6d. to 23s. per cwt. Rape nominal. or cottonseed, Liverpool refined, are firmer, quotations to-day 2s. to 23s. 6d. per cwt. Castor oil is very steady, good seconds is worth 2¾d. per lb.; first pressure French, 2½d. to 2⅞d. There is little doing in tallow, which is steady in price, how- Resin, with common at 3s. 9d. per cwt., is steady, with a te demand in all grades. Spirits of turpentine are in moderate at 21s. 3d. per cwt. Petroleum is unaltered as regards , and quotations remain 4¾d. to 5½d. for American, and 4d. on for Russian refined.

COLOURS. Ochres: Oxfordshire, common, £10., £12., best, £15.; Derbyshire, common, 40s.; medium, 50s., os.; Welsh, best, 70s., seconds, 50s., and common, 18s.; Devonshire, 40s. to 45s.; French, J.C., 55s. to 60s.; M.C., 65s. 6d. Umber: Turkish quiet; Devonshire, 50s. to 55s. White ed lead, and oxide of zinc unchanged. Venetian red, £6. 10s. Cobalt: Prepared oxide, 9s. 9d.; black, 9s.; blue, 6s. No. 1, 3s. 6d.; No. 2, 2s. 6d. Oxide of iron: Common, medium, £10.; finest, £20. Zinc oxide, £23. to £25.

THE LIVERPOOL MINERAL MARKET.

withstanding the holidays, the market has been very brisk. ese: The demand for good ore continues large for spot , with slight advance in prices. Borate, 7d. per lb.; sulphate, os.; oxalate, 1s. 6d. per lb.; chloride, £15., carbonate, s., steady. Magnesite (raw lump) good demand; raw ground,

£6. 10s., and calcined £12. 10s. Bauxite (Irish Hill brand): The demand for home trade is very brisk at full figures; lump 20s., seconds 16s., thirds 12s. French chalk very steady; better demand. Barytes: Carbonate is still scarce; nuts, 72s. 6d. to 85s.; finest white sulphate is in demand. "Angel White," No. 1, 70s.; No. 2, 60s. to 65s.; No. 3, 45s. Pumicestone quiet. Iron ore flat, Bilbao, Irish, and Cumberland slow. San- tander and manganiferous more enquiries. Emery-stone firm; No. 1 lump, £5. 10s. to £6.; smalls, £5. to £5. 10s. Fullers' earth: Best lump, 55s.; fine impalpable ground, £7.; "Emerald" ground, 80s. Scheelite, wolfram, tungstate of soda, and tungsten metal easier. Chrome ore: Good sales have been made this week at increased prices, with more wanted for export. Antimony ore easier, at £11. 10s., and metal £43. to £45. Asbestos firm. Potters' lead ore, smalls, £10. 10s. to £11. Calamine strontia sul- phate (celestine) quiet. Limespar steady, especially for English manufactured; old G.G.B. brand in demand at 50s. (ground). Felspar quiet. Fluorspar: Best quality scarce. Ferro-manganese slow. Plumbago: Spanish, £5.; best Ceylon lump at last quotations; Italian and Bohemian, £4. to £12. per ton; "Founders," £5. to £6.; Blackwell's "Mineraline," £10. French sand, 20s. to 22s. 6d. Ground mica, £45. to £50. China clay steady, common, 18s. 6d.; good medium, 22s. 6d. to 25s.; best, 30s. to 35s. (at Runcorn). Bog ore (oxide of iron): scarce; finest quality 25s. to 30s.

TYNE CHEMICAL REPORT.

TUESDAY.

Chemicals fairly firm. Soda crystals advanced to £2. 15s. per ton, locally, and £2. 10s. per ton for export, the hot weather considerably curtailing the manufacture of this article. Bleach steady at £8. 5s. Caustic soda in good demand at recent prices. Sulphur, £4. 5s. per ton.

Bleaching powder, softs, £8. 5s. per ton nett; hard, £8. 10s. per ton; caustic soda, 76/77%, £11. per ton, 70%, £9. 10s. per 'on; recovered sulphur, 2 cwt. bags, £4. 5s. per ton; soda ash, 48%, £4. per ton, 52%, £4. 7s. 6d. per ton, 56%, £4. 15s. per ton; alkali, 36%, £3. 15s. per ton; white alkali, 48%, £4. 15s. per ton, 50%, £5. per ton, 52%, £5. 5s. per ton; hyposulphite of soda, in 5-7 cwt. casks, £7. per ton, ditto, in 1 cwt. kegs, £7. 15s. per ton; silicate of soda, 75° Tw., £2. 15s. per ton, 100° Tw., £3. 10s. per ton, 140° Tw., £3. 17s. 6d. per ton; soda crystals, in casks, £2. 15s. per ton gross weight, in 2 cwt. bags, £2. 15s. per ton nett weight; chlorate of potash, 8½d. per lb. less 6%; pearl hardening, £3. per ton nett; pure white sulphate of alumina, £4. 2s. 6d. per ton; blanc fixe, £7. 10s. per ton; chloride of barium, £7. 10s. per ton; carbonate of alumina, £28. 15s. per ton nett; aluminate of soda, £33. 15s. per ton nett; in 5 ton lots, £28. 10s.; hydrate of barium, £10. per ton nett.

South Durham salt scarce, 9s. 1d. per ton, f.o.b. Tees. Fishery qualities in good demand.

Coals: In the trade, there is now a feeling that the local miners will work steadily on. There is a strong demand for coal and for odd lots of best steam, the price quoted is 12s. per ton; second qualities at proportionate prices. Small steam firm at 5s. to 5s. 6d. per ton. Gas coal in good demand, prices irregular, from 6s. to 7s. for best Bunker coals. Durham, unscreened, 7s. 9d. to 8s. 9d. per ton. Coke firm at from 16s. to 17s. per ton.

HULL PAINT, OIL, AND COLOUR REPORT.

TUESDAY.

OILS.—Nothing of importance has appeared during the week to change the position of business here. All interest seems to be centred upon the issues of the coal strike, and desiring a speedy settlement to cultivate more confidence. The exports of oils are a little disappoint- ing, being: Linseed oil, 1,263 cwts., against 1,505 cwts.; and cotton oil, 2,135 cwts., against 3,596 cwts for the corresponding week of last year. The imports of olive oil, tallow, and turpentine are considerably below the imports down to this date last year. Linseed oil, with an extremely limited make, has advanced nearly £1. per ton on the spot, closing firm at 21s. 3d. naked, month 21s. September-December has also improved in sympathy, and makes an advance of about 10s. per ton, the quotation being 19s. 3d. Cotton oil, refined, about 5s. per ton better, closing steady at 20s. 3d., naked, spot. Month oil 20s., and September-October 19s. 3d. to 19s. 6d.; November-April, 18s. Refined rape oil, in casks, 25s. 6d. per cwt. Niger oil, in casks, 21s. 6d. per cwt. Olive oil continues of slow sale, with prices ranging

from £35 to £40. per ton. Coast cod oil, £17. 10s. to £20 per ton; Newfoundland ditto, £26.; herring oil, £16. 10s. per ton; sod oil for carriers, etc., £15. to £17. per ton; lubricating grease (equal to Stauffer's), from £16. per ton; pine oil, £7. per ton; auto-friction grease, from £5. 15s. per ton. Resin scarcer and dearer. Petroleum jellies from 26s. per cwt.

CAKES.—This market continues quiet owing to harvest operations, which are well forward around here. Linseed cakes, 95% pure, £8. 12. 6d. per ton; ordinary, £7. 5s. to £7 10s.; Russians, £8. 10s.; Americans, £7. 12s. 6d. Cotton cakes are very firm; best makes £5. 7s. 6d. per ton, spot, and weak at £5., November-March.

PAINTS.—The exports in these goods and chemicals also show a falling off compared with the same week a year ago, being the former 1,096 packages, against 1,835 packages, and chemicals, etc., 1,243 packages, against 1,259 packages. The demand continues fairly good for white lead, oxide of zinc, and the better class varnishes, without alteration in prices. Venetian red, dry, £6. to £10 per ton. Oxide of iron, dry, £9. to £18. per ton. French ochre, 60s. per ton. Enamels from 4s. 9d. per dozen. Ready mixed paints, in 1, 2, 4, 7, and 14 tins, 28s. to 30s. per cwt. Lime blue from 16s. per cwt.

WEST OF SCOTLAND CHEMICALS.

GLASGOW, TUESDAY.

In this market sulphate of ammonia continues still on the mount, and towards the close of the week £14. 2s. 6d. was paid for prompt Leith. It is now said that £14. 5s. has been paid, but, whether or not, holders are asking for that. The quantity of immediately available stuff on the market is very limited. The forward price is also still advancing, in sympathy with the sustained spot rise.

General chemicals here have, as a rule, not marked any further improvement, but with another spell of exceedingly sultry weather upon us, production in certain cases is checked by being made more difficult, and, in these, values are naturally rather firmer. Bichromate of potash and bichromate of soda are in but very moderate demand, at the combination prices agreed on more than a year ago.

The mineral oil companies have been very busy fixing contracts for their burning oil production up to March, finding a very ready market at the late reductions. Most of them are all but fully sold over that period, reserving only a very narrow open margin. Solid paraffins are quiet, at the old values.

Chief prices current are:—Soda crystals £2. 15s. nett, Tyne; soda ash £5. 5s. nett, Tyne; refined alkali £6. 10s. nett, Tyne; alum in lump £5. 10s. nett, Glasgow; caustic soda, white, 74°, £10. 10s., 70/72° £9., 60/62° £8., and cream 60/62° £7. 15s., all nett Liverpool; bleaching powder £8. 5s. nett Tyne; saltcake 24s.; borax, English refined, £30., and boracic acid, £37. 10s. nett, Glasgow; bicarbonate of soda, 5-cwt. casks, £6. 10s., and 1 cwt. casks £6. 15s. less 2½%, Liverpool; bichromate of potash, 4½d. nett, for Scotch and English deliveries (for export, 4¼d. nett f.o.b. Glasgow); bichromate of soda, 3¾d. nett, for Scotch and English deliveries (for export, 3½d. nett, f.o.b. Glasgow); chlorate of potash 8½d. less 5% Liverpool; nitrate of soda, 9s. 6d.; sulphate of ammonia, £14. 2s. 6d. to £14. 5s., f.o.b. Leith; salammiac, first and second white, £37. and £35. less 2½% any port; sulphate of copper, £15. 5s., less 5% Liverpool; paraffin scale, hard and soft, 1¾d. per lb; paraffin wax 120° semi-refined 2¾d.; paraffin spirit (naphtha) 3¾d. a gallon; paraffin oil, burning, standard No. 1 grade, 5d. per gallon at works, for Scotch buyers (English sales ½d. to 1d. lower); ditto (lubricating) 865° £3. 15s. to £4., 885° £4. to £5. 10s., and 890/895° £4. 15s. to £6. 5s. Week's imports of raw sugar at Greenock were 14,329 bags.

New Companies.

Burton Latimer Gas Company, Ltd. Capital £3,000. in shares of £3. each. This company has been formed to carry on the business of a Gas Company in all its various branches.

Flimby & Broughton Moor Coal and Fire Brick Company, Ltd. Capital £150,000. in shares of £10. each, of which 5,000 are preference and the remainder ordinary. This company has been formed to trade as colliery proprietors and fire brick makers. The subscribers to the memorandum of association are: R. Wilson, New Lion Grange, Cockermouth, coalowner; G. S. Wilson, Broughton Grange, Cockermouth, coalowner; W. H. Wilson, Broughton Grange, Cockermouth, coalowner; L. Wilson, Westworth, Cockermouth, coalowner; W. G. Wallis, Maryport, accountant; A. Allright, Edgbaston, chemist; J. E. Wilson, Edgbaston, manufacturer.

Galician Petroleum Company, Ltd. Capital £30,000. in shares of £1. each. This company has been formed to purchase certain oil-bearing properties in Lodyna, and to acquire the undertaking of the Lodyna Petroleum Syndicate, Ltd. The subscribers to the memorandum of association are: C. Croslegh, D.D., Scatcliffe, Englefield Green, Surrey; C. Morrell, Milton Hill, Berks., banker; F. H. Capron, 47, Cornhill, London, E.C., solicitor; F. Legg, 117, Chesnut Avenue, London, E., secretary; T. W. Dupree, 51, Delawney-road, London, N., insurance agent; W. H. Woodward, Birkbeck-road, Sidcup, accountant; W. H. Rickard, 13, Devonshire Crescent, London, S.E., solicitor's clerk.

Iberian Iron Company, Ltd. Capital £200,000., in shares of £1. each. This company has been formed to acquire certain mines and mining rights at or near Pedroso, Seville, Spain. The subscribers to the memorandum of association are: W. A. Hill, Colwell-road, London, S.E., gent.; C. R. Pearson, 18, Buxton-road, Stratford, London, E., gent.; C. J. Hooper, 6, Prospero-road, Highgate, shorthand writer; W. J. Hill, Clapham, London, clerk; H. H. Harrison, Peckham, reporter; E. G. Dakin, Southwark Park-road, London, S.E., clerk; E. Jennings, 14, St. Helen's Place, London, E.C., clerk.

The Patent List.

This list is compiled from Official sources in the Manchester Technical Laboratory, under the immediate supervision of George E. Davis and Alfred R. Davis, who report professionally upon the value of Chemical Patents.

APPLICATIONS FOR ENGLISH LETTERS PATENT.

- Improvements in Electromotors for Alternating Currents. J. A. Kingdom. 14,664. July 31.
- Improvements in the Production of Green and Bluish Green Colouring Matters. O. Imray. 14,671. July 31.
- The Manufacture or Production of New Amido Sulpho Acid and of New Azo Dyes Therefrom. J. Y. Johnson. 14,678. July 31.
- Improvements in Apparatus for Concentrating Sulphuric Acids and other Liquids. T. G. Webb. 14,698. August 1.
- Improvements in Ore Roasting Furnaces or Kilns. O. W. Davis, junior. 14,732. August 1.
- Improvements in Washers for the Extraction of Tar, Ammonia, Carbonic Acid, and Sulphuretted Hydrogen from Coal Gas. F. S. Cripps. 14,783. August 2.
- Improvements in and in the Production of Compositions Adapted to be used in the Treatment of Sewage and other Foul Waters. C. A. Burghardt. 14,801. August 2.
- Improvements in the Manufacture of Colouring Matters. C. D. Abel. 14,895. August 3.
- Apparatus for Electrolytical Decomposition while using Quicksilver as Cathode. P. Jensen. 14,910. August 3.
- Improvements in the Production of Oxygen from Atmospheric Air, and Apparatus to be Employed Therein. Brins Oxygen Co., and K. S. Murray. 14,918. August 3.
- Improvements in the Treatment of Blast Furnace, Producer, and Illuminating Gas for Obtaining Cyanides Therefrom. J. Cuninghame and J. Addie. 14,948. August 4.
- Process for the Preparation of Iodo Compounds of the Phenol Series of the Aromatic Oxy-Carbon Acids with Pyrol. A. J. Boulton. 14,982. August 4.
- An Improvement in Alloying Metals and Metalloids. A. Reynolds. 15,049. August 5.
- Improvements in the Manufacture of Colouring Matters. H. H. Lake. 15,080. August 5.

GERMAN PATENTS period ending AUGUST 12, 1893.

Specially abstracted by Dr. H. Zerener, civil engineer, the Patent Office, 20 Eichendorffstrasse, Berlin, N., for the Chemical Trade Journal. Dr. Zerener is willing to at once protest against the grant of such new Patents as may collide with the interests of subscribers.

- 12 B. 14,402. Preparation of Artificial Musk Addition to Patent No. 47,599. Fab de Prod Chem de Thann et Mulhouse Thann, Alsace.
- 12 C. 3,436. Preparing Isoeugenol from Eugenol. Dr. A. Einhorn, München.
- 22 C. 4,591. Preparing Sulpho Acids of α_1 , α_2 Acetnaphthyleudiamine. L. Cassella and Co., Frankfurt, a/M.
- 12 L. 8,108. Centrifugal Filter. G. R. Lévy, Paris.
- 75 C. 3,964. Obtaining Sulphates, Aluminates, and Carbonates of Potassium and Sodium, and Obtaining Hydrochloric Acid and Sulphur.

Gazette Notices.

PARTNERSHIPS DISSOLVED.

- W. G. COUPER and C. C. H. MILLAR, commission agents and merchants and chemical manufacturers, Fenchurch Avenue, and Billiter square, E.C., Millwall, E., and Montreal, Canada, under the style of Couper, Millar, and Co.
- A. P. SWANN and E. MEIK (formerly E. Mellor,) under the style of William Mello Burslem, colour manufacturers

IMPORTS OF CHEMICAL PRODUCTS

AT

THE PRINCIPAL PORTS OF THE UNITED KINGDOM.

LONDON.

Week ending August 5th.

Acetanilide —			
Holland,	6 pkgs.	J. Barber & Co	
Acetate of Lime —			
U. States,	344 pkgs.	Johnson & Hooper	
Acetic Acid —			
Holland,	108 pkgs.	Beresford & Co.	
Aluminium —			
Belgium,	2 t.	Major & Field	
Ammonium Chloride —			
Holland,	1 pkg.	Beresford & Co.	
Antimony —			
Japan,	6 t.	L. & I. D. Jt. Co.	
Sydney,	35	W. B. Marcus	
Japan,	10	Brooks & Green	
E. Turkey,	60	J. Bamber	
France,	4	B. & F. Wf. Co., Ltd.	
New Zealand,	20	Major & Field	
Antimony Oxide —			
France,	30 pkgs.	M. R. Revan & Knight	
Asbestos —			
U. States,	£1,440	Furness, Withy & Co.	
"	855	F. Stahlschmidt & Co.	
Canada,	80	W. Byford	
Holland,	7	G. Rahn & Co.	
Italy,	125	Mory & Co.	
Belgium,	266	Brit. Asbestos Co.	
"	8	T. H. Lee	
Barium Chloride —			
Germany,	25 pkgs.	Petri Bros.	
Barytes —			
Belgium,	36 cks.	J. L. Lyon & Co.	
"	22	W. Fenton	
Germany,	19	S. H. Willoughby	
"	64	W. Harrison & Co.	
Belgium,	22	Phillipps & Graves	
Holland,	45	O'Hara & Hoar	
Germany,	23	R. W. Greef & Co.	
Beryl Hydrate —			
Holland,	3 pkgs.	J. Barber & Co.	
Cacothene —			
E. Indies,	401 c.	L. & I. D. Jt. Co.	
"	25	Butler's Wf. Ltd.	
"	39	Prop. Bull Wf.	
U. States,	267	Hammond & Co.	
Cape,	196	Clarke & Smith	
Zanzibar,	28	L. & I. D. Jt. Co.	
P. E. Africa,	320	J. Owen	
France,	6	H. Johnson & Sons	
Carbolic Acid —			
Holland,	8 pkgs.	Langstaff & Co.	
Carbonic Acid Gas —			
Melbourne,	9 pkgs.	W. J. Bush & Co.	
Castor Oil —			
E. Indies,	50 cs.	Anderson, Weber & Smith	
A. Turkey,	5 brls.	L. & I. D. Jt. Co.	
Italy,	30 cs.	Evans, Lescher & Co.	
E. Indies,	178	Co-op. Lightg. Asc'n., Ltd.	
Belgium,	20 brls.	Fuerst Bros.	
Caustic Potash —			
France,	37 drs.	Spies Bros. & Co.	
"	19 cydls.	Carey & Sons	
Chemicals (otherwise undescribed)			
Germany,	36 pkgs.	A. & M. Zimmermann	
France,	£15	B. & F. Wf. Co., Ltd.	
Germany,	11 cks.	Phillipps & Graves	
Belgium,	15 pkgs.	F. Smith	
Holland,	£10	T. Palmer	
"	12	F. Stahlschmidt & Co.	
"	7	Beresford & Co.	
U. States,	5	F. Maybury	
Germany,	12	C. F. Gerhardt	
"	7	Pickford & Co.	
"	5	C. Atkins & Nisbet	
"	86 pkgs.	T. H. Lee	
Cream of Tartar —			
Holland,	25 pkgs.	Middleton & Co.	
France,	12	B. & F. Wf. Co., Ltd.	
France,	4	G. Ward & Sons	
"	10	C. F. Gerhardt	
Belgium,	20	Middleton & Co.	
Dextrine —			
Holland,	50 pkgs.	H. Lorenz	
Germany,	58	Prunk, Davis & Co.	
Dyestuffs —			
Aniline			
France,	3 pkgs.	Stockwell & Co.	
Anthracene			
Holland,	142 pkgs.	Burt, Boulton & Co.	
Argols			
France,	63 pkgs.	R. Warner & Co., Ltd.	
Cochineal			
Canaries,	10 pkgs.	L. & I. D. Jt. Co.	
"	23	Swanston & Co.	
"	19	Marshall & French	
"	10	W. M. Smith & Sons	
Cutch			
E. Indies,	10 pkgs.	Ralli Bros.	
Cape,	309	"	
Divi Divi			
E. Indies,	63 pkgs.	Walker, Munsie & Co.	
"	214	R. von Glehn & Sons	
Extracts			
Germany,	29 pkgs.	H. Lambert	
France,	100	B. & F. Wf. Co., Ltd.	
U. States,	50	W. Burton & Sons	
Denmark,	5	Bailey & Leatham	
France,	80	L. J. Levinstein & Sons	
"	4	R. J. Fullwood & Bland	
Germany,	5	T. H. Lee	
Gambler			
E. Indies,	331 pkgs.	Brown & Elmslie	
"	3,083	Adamson, Gilfillan & Co.	
"	224	J. Greig	
"	210	Leach & Co.	
"	868	R. & J. Henderson	
"	454	Beresford & Co.	
"	280	S. Barrow & Bro., Ltd.	
"	45	Powell	
"	280	J. Kitchin, Ltd.	
Indigo			
E. Indies,	18 cts.	P. Macfadyen & Co.	
"	7	L. & I. D. Jt. Co.	
"	13	Croystale & Co.	
"	10	R. von Glehn & Sons	
Ceylon,	21	L. & I. D. Jt. Co.	
U. States,	13	Chalmers, Guthrie & Co.	
E. Indies,	5	Arbuthnot, Latham & Co.	
Logwood			
Savannah,	1 t.	L. & I. D. Jt. Co.	
Myrabolams			
E. Indies,	600 pkgs.	W. Shelcott	
"	1,018	L. & I. D. Jt. Co.	
Oreochela			
Zanzibar,	191 pkgs.	L. & I. D. Jt. Co.	
Ceylon,	4	Prop. Bull Wf.	
Portugal,	140	L. & I. D. Jt. Co.	
E. Indies,	1	L. & I. D. Jt. Co.	
Sumac			
Italy,	25 pkgs.	C. S. Lovell	
Tanner's Bark			
Melbourne,	51 t.	Devitt & Hett	
"	85	Sounly & Son	
"	30	Culverwell, Brooks & Co.	
U. States,	20	H. Kehastam	
New Zealand,	19	Beresford & Co.	
P. E. Africa,	1	J. Owen	
Adelaide,	30	Beresford & Co.	
Turmeric			
Hong Kong,	800 pkgs.	Hoare, Wilson & Co.	
Farina —			
Holland,	50 pkgs.	B. & N. Wf. Co., Ltd.	
"	100	G. Hornzee	
"	50	H. Lorenz	
Flax Skimmings —			
U. States,	53 pkgs.	Hughes, Chemery & Co.	
Glucose —			
U. States,	500 pkgs. 500 c.	L. & I. D. Jt. Co.	
"	724	5,790 H. W. Peabody & Co.	
"	2,000	2,000 Union L. Co., Ltd.	
France,	300	300 Trier Meyer & Co.	
U. States,	1,000	1,000 Boake, Roberts & Co.	
"	34	204 Page, Son & East	
"	50	300 G. White	
"	85	425 Elkan & Co.	
"	30	165 Vokins & Co.	
"	200	1,130 Pillow, Jones & Co.	
"	200	201 Devitt & Hett	
"	253	1,503 P. Windmuller & Co.	
"	4,353	6,120 R. G. Hall & Co.	
"	1,538	2,180 B. & N. Whys. Co.	
"	100	568 Proprs. Scott's Wf.	
"	250	250 Trier, Meyer & Co.	
"	50	283 J. Keiller & Son	
"	100	608 C. Southwell & Co.	
"	1,000	1,000 Fellows, Morton & Co.	
"	75	401 W. Balchin	
"	1,600	1,600 G. Hedges & Son	
"	195	1,017 T. M. Duche & Sons	
"	1,839	9,513 L. Sutro & Co.	
"	1,000	1,000 Barratt, Tagant & Co.	
France,	200	200 " M. D. Co.	
Germany,	100	100 Proprs. Sun Wf.	
Holland,	80	80	
Lead Acetate —			
U. States,	31 pkgs.	F. Boehm	
Manganese —			
Japan,	220 t.	Scrutton, Sons & Co.	
Manure —			
N. Russia,	10 t.	Hoyerman's Agency	
Methyl Alcohol —			
U. States,	100 brls.	J. Kertel	
Mica —			
E. Indies,	£310.	W. M. Smith & Sons	
U. States,	75	C. F. Gerhardt	
Ochre —			
Holland,	2 cks. 12 cs.	Phillipps & Graves	
Paraffin Wax —			
U. States,	376 pkgs.	H. Hill & Sons	
"	500 brls.	G. H. Frank	
"	2,032	J. H. Usmar & Co.	
Phosphate Rock —			
Holland,	230 t.	Lawes Manure Co.	
Belgium,	370	West & Peurose	
France,	358	A. Hunter & Co.	
Plumbago —			
Cochin,	172 brls.	L. & I. D. Jt. Co.	
Ceylon,	514	93 cks. J. Thredder, Son & Co.	
Germany,	17 cks.	B. Galloway	
"	12	T. H. Lee	
Holland,	4	B. Galloway	
Potash —			
France,	168 c.	Petri Bros.	
Canada,	57	S. Ward & Co.	
"	30	Charles & Fox	
Potash Salts —			
Holland,	6 pkgs.	J. Barber & Co.	
Potassium Bicarbonate —			
Holland,	60 c.	A. & M. Zimmermann	
Potassium Bromide —			
France,	50 pkgs.	T. H. Lee	
Potassium Carbonate —			
France,	40 c.	Spies Bros. & Co.	
Germany,	247	Paton & Charles	
Potassium Cyanide —			
Holland,	60 pkgs.	Phillipps & Graves	
"	1	J. Barber & Co.	
Rosin —			
U. States,	513 brls.	Prod. Brokers' Co.	
France,	15	Lucas & Spencer's Wf.	
Belgium,	18	"	
Salicylates —			
Holland,	2 pkgs.	J. Barber & Co.	
Saltpetre —			
Germany,	13 cks.	Brown & Elmslie	
E. Indies,	840 bgs.	Ralli Bros.	
"	619	Brown & Elmslie	
Germany,	40	J. Hall & Sons	
Holland,	85	P. Hecker & Co.	
Silica —			
Germany,	£200.	A. Haacke & Co.	
Sodium Acetate —			
France,	18 pkgs.	S. F. Waters & Co.	
Sodium Hyposulphite —			
Germany,	186 pkgs.	Beresford & Co.	
Stearine —			
France,	180 bgs.	Walbaum & Tosetti	
"	10	T. Trapp & Sons	
Talc —			
France,	£50.	Stobbs, Wilson & Co.	
Tar —			
N. Russia,	540 brls.	Hindley & Co.	
Tartaric Acid —			
Holland,	2 pkgs.	J. Owen	
"	3	F. C. Devon & Co.	
"	13	B. & F. Wf. Co., Ltd.	
"	24	Middleton & Co.	
France,	2	F. C. Devon & Co.	
Holland,	6	Domeier & Co.	
Ultramarine —			
Holland,	5 cs.	Haefner, Hilpert & Co.	
"	23 pkgs.	Hernu, Peron & Co.	
"	10 cs.	Phillipps & Graves	
Belgium,	12 brls.	Leach & Co.	
Germany,	31 pkgs.	G. Steinhoff & Sons	
Verdigris —			
France,	1 pkge.	T. Meadows & Co.	
White Lead —			
France,	10 cks.	J. Watts & Sons	
Belgium,	9	J. L. Lyon & Co.	
Germany,	10	W. Taylor, Jun., & Co.	
"	17	Blundell, Spence & Co.	
"	2	Petri Bros.	
"	4	Spies Bros. & Co.	
"	21	G. Clifford	
France,	50	W. Harrison & Co.	
Holland,	22	Burrell & Co.	
"	50	T. & W. Farmiloe	
"	36 pkgs.	W. Balchin	
Germany,	24 cks.	S. H. Willoughby	

Zinc Oxide—			
U States, 100 brls.	M. Ashby, Ld.		
Germany, 8 cks.	Beresford & Co.		
" 50	M. Ashby, Ld.		
Holland, 100	Burrell & Co.		
" 30	M. Ashby, Ld.		
Germany, 625	Soundy & Sons		
France, 30	J. Mattou		
" 12	Smith, Sundius & Co.		
Holland, 12	" "		
Zinc White—			
Holland, 20 cks.	Proprs. Dowgate Dk.		

LIVERPOOL.

Week ending Aug 3rd.

Acids—			
Rotterdam, 1 ck.			
Alumina Sulphate—			
Rotterdam, 20 cks.			
Aniline Salts—			
Rotterdam, 4 cks.			
Barytes—			
Antwerp, 13 cks. 50 bgs.			
Boracic Acid—			
Leghorn, 75 cks.			
Borates—			
San Francisco, 1,330 sks.			
Castor Oil—			
Calcutta, 1,205 cs.	Petrochino Bros.		
" 1,167	Ralli Bros.		
" 875			
Chemicals (otherwise undescribed)			
Rotterdam, 4 cks.			
Colours—			
Antwerp, 8 cks.	J. T. Fletcher & Co.		
Rotterdam, 125	3 cs.		
Hamburg, 4			
Cream of Tartar—			
Barcelona, 5 cks.			
Rotterdam, 1			
Dyestuffs—			
Divi Divi			
Hamburg, 252 bgs.			
Extracts			
Trieste, 591 brls.	Oak Extract Co.		
Philadelphia, 25			
Bordeaux, 300 cks.			
Baltimore, 95			
Fustic			
Trieste, 35 t.	Fratelli, Levy Suce		
Savanna, 822 ps.	Schuttle, Greseker & Co.		
Cartagena, 945	Widow, Duranty & Son		
Colon, 1,130			
" 2,549	D. Midgeley & Son		
"Fustic Extract			
New York, 1 kg.	C. A. Johnson & Co.		
Philadelphia, 50 brls.			
Indigo			
Havre, 11 cs.	Cunard, S. S. Co., Ltd.		
Logwood			
Philadelphia, 200 bxs.	50 brls.		
Baltimore, 172 crts.	117 bdls.		
Madder			
Rotterdam, 1 ck.			
Orchella			
Lisbon, 20 bgs.			
Saffron			
Valencia, 2 cs.			
Sumac			
Palermo, 920 bgs.			
Turmeric			
Calcutta, 9 bgs.			
" 743	Ralli Bros.		
Farina—			
New York, 1 cs.	T. Robinson & Son		
Glucose—			
New York, 450 brls.	G. E. Bartols & Co.		
" 200	J. H. Kirkland		

Lead Acetate—			
Hamburg, 16 cks.			
Limestone—			
Antwerp, 2 pkgs.	J. T. Fletcher & Co.		
" 46 crts.			
Manganese—			
Bordeaux, 283 t.	R. & D. Jones		
Mica—			
New York, 10 brls.	T. Robinson & Son		
Mineral White—			
Fiume, 100 bgs.			
Naphtha—			
Hamburg, 4 dms			
Nitrate—			
Pisagua, 1,400 t.			
Ochre—			
Norfolk, Va., 320 brls.			
Bordeaux, 40 cks.			
Paint—			
Boston, 20 cs			
Bilbao, 22 pkgs.	M. Holzapfel & Co.		
Paraffin Scale—			
Philadelphia, 1,004 brls.			
Phosphates—			
Oruba, 345 t.	G. Hadfield & Co.		
Ghent, 200 bgs.			
Phosphate Rock—			
Beaufort, S. C., 3,778 t.	J. Adyers & Co.		
Plumbago—			
Genoa, 100 bgs.	G. Huntriss & Co.		
Potash—			
Rotterdam, 98 cks.			
Pumice Stone—			
Messina, 2 cs. 30 bgs			
Pyrites—			
Huelva, 3,436 t.	Matheson & Co.		
Quicksilver—			
Gijon, 100 bdls.	A. Ruffer & Sons		
Rosin—			
New Orleans, 100 brls.			
Saltpetre—			
Calcutta, 251 bgs.			
" 1,232	Ralli Bros.		
Hamburg, 50 brls.			
Silver Sulphur—			
Colon, 7 cs.	Sanchez & Gaffron		
Soap—			
Bari, 50 cs.	Stoddart & Lovering		
" 99			
Naples, 53	A. Auserry & Co.		
Philadelphia, 63 crts.	1,063 bxs.		
Leghorn, 750 bxs.	Weaver & Sterry		
Rotterdam, 10 cs.			
Soapstone—			
Bordeaux, 450 bgs.	G. G. Blackwell		
Genoa, 50			
Sodium Acetate—			
Rouen, 25 cks.	R. J. Francis & Co.		
Sodium Chlorate—			
Havre, 20 kgs.	Cunard S. S. Co., Ltd.		
Sodium Nitrate—			
Caleta Buena, 7,218 bgs.			
Sulphur—			
Catania, 100 cks.	75 t.		
Tallow—			
Boston, 145 brls.	250 tcs.		
Philadelphia, 50 pkgs.			
Tartar—			
Bordeaux, 3 cks.			
Tartaric Acid—			
Rotterdam, 4 cks.	Sachse & Klemm		
" 12	20 kgs.		
Tin Oxide—			
Rotterdam, 1 ck.			
Turpentine—			
Lisbon, 22 cks.	E. Brunner		
Ultramarine—			
Hamburg, 12 cs.			
In transit, 101			
Rotterdam, 8	3 cks.		
White Lead—			
Rotterdam, 43 cks.			

Zinc Ashes—			
Rouen, 742 bgs.	R. J. Francis & Co.		
Zinc Oxide—			
Antwerp, 25 cks. 62 brls.			
Rotterdam, 29			
Hamburg, 25			
Zinc Skimmings—			
Philadelphia, 11 cks.			
Zinc White—			
Rotterdam, 100 cks.	O. & H. Marcus		

HULL.

Week ending August 5th.

Acetate—			
New York, 1,204 bgs.	Wilson, Sons, & Co., Ld.		
Acids—			
Bari, 13 cks.	Wilson, Sons, & Co., Ld.		
Arsenic—			
Hamburg, 30 cks.	Wilson, Sons, & Co., Ld.		
Asbestos—			
" 2 bls. 3 cs.	Hutchinson & Son		
Barytes—			
Rotterdam, 22 cks.	J. W. Davis & Son		
Antwerp, 22	Bailey & Leatham		
Bremen, 100 bgs. 65 pks.			
" 46 cks.	Tudor & Sons		
Rotterdam, 24	Veltmann & Co.		
" 41	Hutchinson & Son		
Caoutchouc—			
Hamburg, 3 bls. C. M. Lofthouse & Co.			
Cellulose—			
Hamburg, 48 bls.			
Chemicals (otherwise undescribed)			
Bremen, 3 cs. 4 pks.	Veltmann & Co.		
Dunkirk, 63 pkgs.	Wilson, Sons, & Co., Ld.		
Colours—			
Riga, 53 cks.	Wilson, Sons, & Co., Ld.		
Flushing, 13 pkgs.	G. Lawson & Son		
Rotterdam, 3 cks.	" "		
Hamburg, 8	A. Sanderson & Co.		
Stettin, 17	Wilson, Sons, & Co., Ld.		
Rotterdam, 100			
" 29 pks.	W. & C. L. Ringrose		
Amsterdam, 1 kg.	" "		
Antwerp, 81 cks.	Bailey & Leatham		
Bremen, 4	Veltmann & Co.		
Flushing, 1	10 cs. Hutchinson & Sons		
Rotterdam, 12	2		
Antwerp, 6	" "		
Cream of Tartar—			
Rotterdam, 2 cks.			
Dyestuffs—			
Alizarine			
Rotterdam, 54 pks.	W. & C. L. Ringrose		
Myrobolams			
Bombay, 1,300 pkts.			
Sumac			
Trieste, 9 bls.	Wilson, Sons, & Co., Ld.		
Palermo, 750 bgs.			
" 1,480			
Valonia			
Smyrna, 6 bgs.	279 t.		
Farina—			
Stettin, 250 bgs.	Wilson, Sons, & Co., Ld.		
Ghent, 420 cs.			
Harlingen, 1,100 bgs.	W. & C. L. Ringrose		
Glucose—			
New York, 430 brls.			
Stettin, 350 bgs.			
Mica—			
Christiania, 4 bgs.	Wilson, Sons, & Co., Ld.		
Ochre—			
Rouen, 11 cks.	Rawson & Robinson		
Paint—			
Boston, 30 cs.	Wilson, Sons, & Co., Ld.		
New York, 30	" "		

Phosphate—			
Ghent, 816 bgs.	Wilson, Sons, & Co., Ld.		
Potash—			
Antwerp, 85 pks.	Wilson, Sons, & Co., Ld.		
Pumice Stone—			
Messina, 481 pks.	Wilson, Sons, & Co., Ld.		
Rosin—			
Wilmington, 3,212 brls.			
Salt—			
Hamburg, 2 pks.	Wilson, Sons, & Co., Ld.		
Saltpetre—			
Hamburg, 5 cks.	Wilson, Sons, & Co., Ld.		
Soap—			
Hamburg, 30 kgs.	Wilson, Sons, & Co., Ld.		
Bari, 11 cs.	" "		
Sulphur—			
Stettin, 2 bgs.	Wilson, Sons, & Co., Ld.		
Catania, 3,449 pks.			
" 450 bgs.	" "		
Talc—			
Fiume, 100 bgs.	Wilson, Sons, & Co., Ld.		
Tallow—			
Boston, 62 tcs.	Wilson, Sons, & Co., Ld.		
New York, 115 bgs.	" "		
Cronstadt, 25 cks.			
Antwerp, 27 bgs.	Wilson, Sons, & Co., Ld.		
Tartaric Acid—			
Rotterdam, 12 cks.	G. Lawson & Sons		
" 2	Woodhouse & Co.		
Turpentine—			
Trieste, 2 cs.	Wilson, Sons, & Co., Ld.		
Wilmington, 1,250 brls.			
Ultramarine—			
Bremen, 24 cks.			
Varnish—			
New York, 40 cs. 1 brl.	Wilson, Sons, & Co., Ld.		
Rotterdam, 7	W. & C. L. Ringrose		
White Lead—			
Rotterdam, 47 cks.	Hutchinson & Son		

GLASGOW.

Week ending August 10th.

Ammonia (Liquid)—			
Antwerp, 19 jars			
Aniline Colours—			
Rotterdam, 1 cs.	J. Rankine & Son		
Barium Sulphate—			
Antwerp, 650 bgs.	43 cks.		
Barytes—			
Rotterdam, 67 cks.	J. Rankine & Son		
Carbonic Acid Gas—			
Rotterdam, 5 tubes	J. Rankine & Son		
Colours—			
Rotterdam, 3 cs.	J. Rankine & Son		
Dyestuffs—			
Alizarine			
Rotterdam, 4 cks.	J. Rankine & Son		
Argols			
Bordeaux, 20 bgs.			
Extracts			
Antwerp, 2 cks.			
Sumac			
Rouen, 94 bgs.			
Farina—			
Antwerp, 15 bgs.			
Glucose—			
New York, 400 brls.			
Guano—			
Hammerfest, 1,182 bgs.	Roberts & Berntsen		
Nitrate—			
Taltai, 14,612 bgs.	Thomson, Aikman & Co.		
Paint—			
New York, 1 brl.			
Painters' Colours—			
Antwerp, 4 cs. 1 ck.			

Paraffin Scale—		
Philadelphia,	830 brls.	
Phosphate of Lime—		
Ostend,	550 t.	A. Cross & Sons
Antwerp,	200 bgs.	
Potash—		
Rotterdam,	20 cks.	J. Rankine & Son
Rosin—		
New York,	1,505 brls.	
Soap—		
Philadelphia,	500 cs.	
Stearine—		
Antwerp,	62 bgs.	
Tallow—		
New York,	93 tcs.	
Philadelphia,	262	
Tartar—		
Bordeaux,	18 cks.	
Yarnish—		
New York,	108 brls.	
White Lead—		
Rotterdam,	36 cks.	J. Rankine & Son
Zinc Oxide—		
New York,	20 brls.	

TYNE.

Week ending August 5th.

Alum Earth—		
Hamburg,	18 cks.	Tyne S. S. Co.
Alumina—		
Copenhagen,	379 cks.	
Barytes—		
Rotterdam,	46 cks.	Tyne S. S. Co.
Antwerp,	13 22 bgs.	"
Limestone—		
Antwerp,	3 crts. 2 cs.	Tyne S. S. Co.
Phosphate—		
Brussels,	200 t.	Langdale's Chemical Manure Co.
Phosphate of Lime—		
Treport,	1,300 bgs.	
Saltpetre		
Hamburg,	13 cks.	Tyne S. S. Co.
Saltpetre Salt—		
Hamburg,	200 t.	
Sulphur—		
Huelva,	560 t.	

Waste Salt—		
Hamburg,	250 t.	Clephans & Wiencke
White Lead—		
Antwerp,	1 ck.	Tyne S. S. Co.
Zinc Oxide—		
Antwerp,	15 brls.	Tyne S. S. Co.

GOOLE.

Week ending August 2nd.

Alkali—		
Hamburg,	42 cks.	
Calais,	20 dms.	
Benzol—		
Rotterdam,	3 cs.	
Chemicals (otherwise undescribed)		
Rotterdam,	1 ck.	
Dyestuffs—		
Alizarine		
Rotterdam,	110 pkgs. 60 brls.	
Madder		
Rotterdam,	4 brls.	
Dyestuffs (otherwise undescribed)		
Boulogne,	5 cs. 27 cks. 15 pkgs.	
Ghent,	5	

Glucose—		
Hamburg,	30 cks.	
Potash—		
Calais,	80 dms.	
Dunkirk,	30 13 cks.	
Saltpetre—		
Rotterdam,	100 bgs.	
Hamburg,	6 cks.	
Size—		
Boulogne,	1 ck.	
Zinc Oxide—		
Antwerp,	25 brls.	

GRIMSBY.

Week ending August 5th.

Chemicals (otherwise undescribed)		
Hamburg,	3 cks. 28 pkgs.	
Dyestuffs (otherwise undescribed)		
Dieppe,	9 cks.	
Size—		
Antwerp,	1 cks.	
Hamburg,	5	
Zinc Ashes—		
Antwerp,	9 pkgs.	

EXPORTS OF CHEMICAL PRODUCTS

OF

THE PRINCIPAL PORTS OF THE UNITED KINGDOM.**LONDON.**

Week ending August 9th.

Acids—		
Algoa Bay,	18 cs.	£22
Auckland,	15 pkgs.	102
Singapore,	20 cs.	15
Cape Town,	14	13
Alkali—		
Sydney,	10 t.	£70
Penang,	10 c.	11
Alum—		
Pernambuco,	1 t.	£6
Sydney,	5	28
Ammonia (Liquid)—		
Hamburg,	5 c.	£31
Iquique,	10	28
Ammonium Carbonate—		
St. Petersburg,	95 pkgs.	£257
Stettin,	1 t.	24
Ammonium Chloride—		
Sydney,	7 t. 5 c.	£146
Colongne,	19 cks.	90
Constantinople,	2 t. 10 c.	88
Ammonium Sulphate—		
Demerara,	15 t.	£218
Hamburg,	416 1 c.	5,465
Arsenic—		
Auckland,	1 t.	£16
Montreal,	1 4 c.	26
Borax—		
Sydney,	1 t.	£30
Natal,	4 c.	6
Hamburg,	6 cks.	48
Copenhagen,	18 c.	45
Carbolic Acid		
E. London,	10 c.	£17
Pt. Elizabeth,	16 pkgs.	28
Colombo,	12 c.	10
Genoa,	10 cs.	54
Sydney,	5 cks. 20 drs.	29
Caustic Soda—		
Algoa Bay,	17 c.	£19
Natal,	1 t. 4 c.	17
Napier,	5 15	68
E. London,	5	8
Sydney,	20 13	202
Chemicals (otherwise undescribed)		
Melbourne,	3 c.	£11
Bombay,	5 10 pkgs.	86
Colombo,	2	11
Madras,	1 cs.	25
Cape Town,	8	13
Shanghai,	6 pkgs.	12

Citric Acid—		
Libau,	4 c.	£47
Rotterdam,	5 2 kgs.	61
Hamburg,	1 t.	180
St. Petersburg,	1 5 c.	204
Cape Town,	2 kgs.	16
Algoa Bay,	1 cs.	7
Copenhagen,	5	42
Coal Products—		
Aniline Dyes		
New York,	73 pkgs.	£336
Aniline Oil		
Genoa,	5 drs.	£160
Rotterdam,	22	650
Anthracene		
Rotterdam,	124 cks.	£540
Benzol		
Calais,	20 cks.	£158
Rotterdam,	50	140
Boulogne,	50	148
Coal Tar Dyes		
Auckland,	50 bgs.	£40
Calcutta,	2 cs.	53
Creosote		
Ghent,	23,687 galns.	£220
Creosote Oil		
Treport,	30 brls.	£42
Naphtha		
Treport,	51 brls.	£120
Brussels,	10 cks.	35
Naphthaline		
Hamburg,	151 pkgs. 24 cks.	£158
Pitch		
Helsingfors,	250 t.	£298
Duisburg,	160	250
Pyridine		
Calais,	1 ck.	£23
Tar		
Natal,	20 cks.	£11
Sydney,	25 brls.	13
Helsingfors,	1,500	660
Algoa Bay,	250 drs.	12
Gothenburg,	50 cks.	33
Tar Oil		
Treport,	26 cks.	£20
Copperas—		
Rabat,	8 t. 10 c.	£18
Copper Sulphate—		
Sydney,	1 t.	£15
Dunedin,	1 10 c.	26
Cream of Tartar—		
Melbourne,	15 c.	£57
Auckland,	1 19	154
Algoa Bay,	2	9
Wellington,	5 cs. 5 kgs.	42
Sydney,	2 t. 14 c.	207

Disinfectants—		
Kingston,	2 cs.	£10
Auckland,	17	34
Valencia,	2 t. 10 c.	55
Bombay,	25 cks.	13
Madras,	4 18 drs.	83
Calcutta,	6 pkgs.	11
Wellington,	12 c.	19
Acajutla,	5 pkgs.	23
Dried Blood—		
Dunkirk,	15 t.	£100
Flowers of Sulphur—		
Algoa Bay,	1 t. 19 c.	£25
Melbourne,	10	105
Fluoric Acid—		
E. London,	1 cs.	£6
Hydrochloric Acid—		
Huelva,	12 cs.	£16
Hydrofluoric Acid—		
E. London,	14 c.	£50
Manure—		
Riga,	619 t. 6 c.	£1,518
Stralsund,	210	820
Demerara,	5	58
Surinam,	45	475
Tarragona,	43 14	352
Barcelona,	37	296
Motril,	254 18	2,040
Lytleton,	25	103
Jamaica,	37	193
Gothenburg,	364 10	934
Cape Town,	6	36
Pt. Elizabeth,	2 9	24
Bluff,	100	380
Dunedin,	60	232
Timaru,	100	388
Bordeaux,	25	45
Natal,	1 10	105
Hamburg,	500	1,500
Treport,	69 16	415
Nitric Acid—		
Cape Town,	5 cs.	£13
Melbourne,	6	11
Huelva,	12	39
Oxalic Acid—		
Demerara,	12 t. 10 c.	£336
Motril,	7	9
Phosphoric Acid—		
Boulogne,	5 c.	£20
Potassium Bichromate—		
Shanghai,	5 c.	£29
Rotterdam,	6 cks.	110
Madras,	3 c.	7
Potassium Chlorate—		
Bombay,	1 t. 2 c.	£93
Potassium Cyanide—		
Boulogne,	6 cs.	£56
Huelva,	1	9

Potassium Prussiate—		
Motril,	6 c.	£21
Saltpetre—		
Algoa Bay,	15 c.	£18
Cape Town,	10	11
Auckland,	1 t. 10	21
Melbourne,	2	44
Oporto,	7 7	149
Sheep Dip—		
Natal,	100 drs.	£22
Algoa Bay,	2,660	47
Cape Town,	3 t.	101
Pt. Elizabeth,	6 1 c.	200
B. Ayres,	11	18
Soda—		
Auckland,	1 t.	£8
Algoa Bay,	14 c.	3
Melbourne,	1 10	9
Soda Crystals—		
Cape Town,	1 t. 3 c.	£4
Soda Salts—		
New York,	2 t. 17 c.	£70
Sodium Bicarbonate—		
Algoa Bay,	9 c.	£4
Auckland,	2 t. 11	26
Sodium Carbonate—		
Algoa Bay,	10 c.	£18
Wellington,	10	4
Huelva,	2 cs.	18
Sodium Phosphate—		
Calcutta,	1 c.	£6
Sodium Sulphate—		
Ghent,	100 t.	£150
Sodium Tartrate—		
Melbourne,	5 c.	£16
Sulphur—		
Sydney,	20 cks.	£19
Cape Town,	18 c.	10
E. London,	40 pkgs. 6 t. 13 c.	105
Sulphuric Acid—		
Trinidad,	2 t. 9 c.	£9
Algoa Bay,	20 drs.	30
Colombo,	25 cs. 15	35
Huelva,	6	10
Superphosphate—		
Treport,	39 t. 19 c.	£140
Superphosphate of Lime—		
Martinique,	4 t. 2 c.	£12
Tartaric Acid—		
Melbourne,	2 t. 10 c.	£249
Hamburg,	10	52
Wellington,	5 cs.	30
Sydney,	2 4	225
Tartaric Acid and Cream of Tartar—		
Wellington,	4 kgs.	£18

LIVERPOOL.

Week ending August 9th.

Alkali—		
Hiogo,	5 t.	£36
Alum—		
Montreal,	7 t. 14 c. 3 q.	£37
Galatz,	1 9	7
Aleppo,	2 14	13
Porto Alegre,	1 5	7
Ibrail,	4 10 2	28
Ammonium Carbonate—		
Santander,	5 c. 1 q.	£3
Montreal,	15 3	23
Leghorn,	10	28
Copenhagen,	1 1	36
Ammonium Chloride—		
Santander,	1 c. 1 q.	£2
Smymna,	16 3	28
Montreal,	5 1	9
Rettimo,	2 2	4
Philadelphia,	4 t. 15 1	145
Antwerp,	1 9	34
Genoa,	1 18 1	32
Beyrout,	12 2	22
Galatz,	12	21
Ibrail,	4	7
Marseilles,	14	25
Piræus,	5	9
Syra,	8	14
Ammonium Sulphate—		
Valencia,	55 t. 12 c.	£588
Nantes,	60 8	738
Gutujefsky,	10 2 1	130
Gr. Canary,	36 6	475
Tagal,	40 13 1	549
Rotterdam,	152 7 3	2,048
Copenhagen,	1 2	30
Asbestos—		
Maranham,	9 cks.	
Valparaiso,	1 cs.	
Benzine—		
Vera Cruz,	1 q.	£5
Bleaching Powder—		
Baltimore,	151 cks.	
Boston,	136	
Calcutta,	125 cs.	
Callao,	8 cks.	
Carril,	6 brls.	
Constantinople,	6	
Genoa,	68 cks.	
Leghorn,	30	
New York,	298 20 bxs.	
Venice,	5	
Catania,	9	
Ghent,	110	
Montreal,	33	
San Sebastian,	70	
Boric Acid—		
Yokohama,	1 t.	£18
Rouen,	11 3	375
Borax—		
Santander,	4 c. 3 q.	£7
Rotterdam,	4 t. 19 2	144
Nantes,	1 2	30
Vera Cruz,	1 10 1	51
Ibrail,	3	5
Borax Crystals—		
Havana,	5 c.	£7
Calced Magnesia—		
Havana,	1 c. 1 q.	£161
Caoutchouc—		
La Guayra,	1 pkge.	
Carbolic Acid—		
Rotterdam,	5 t.	£325
Odessa,	9 c. 2 q.	36
Copenhagen,	1 t. 2	65
Philadelphia,	50 lbs.	17
Castor Oil—		
Lisbon,	14 cs.	
Caustic Potash—		
Cadiz,	2 t. 4 c.	£67
New York,	3 4	76
Caustic Soda—		
Baltimore,	51 dms.	
Barcelona,	170 80 brls.	
Bari,	53	
Bilbao,	30	
B. Ayres,	35	
Catania,	55	
Genoa,	200	
Havre,	15 26 bdl.	
Lisbon,	45	
Messina,	70	
Montreal,	59	
New York,	125	
Oporto,	30	
Passages,	30	
Penang,	30	
Pernambuco,	265	

Porto Rico,	12
Rotterdam,	69 dms. 5 cks.
San Sebastian,	55
Seville,	256
Alexandretta,	300
Batavia,	20
Chicago,	300
Ibrail,	375
Rangoon,	14
Valencia,	30

Chemicals (otherwise undescribed)

Alexandria,	1 t.	1 q.	£14
Yokohama,	2	19 c. 2	90
Leghorn,	12		17

China Clay—

Barcelona,	50 t.
Bombay,	63
Boston,	512
Piræus,	18
St. John's,	50 bgs.

Coal Products—

Naphtha	
Rouen,	45 cks.
Pitch	
Galatz,	100 brls.
Havre,	263 t.
St. Nazaire,	355
Tar	
Boma,	7 cks.
Tar Oil	
Rouen,	26 brls.

Copperas—

San Francisco,	22 t. 8 c.	£53
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Copper Sulphate—

Catania,	10 t. 2 c. 2 q.	£100
Marfil,	25 5 1	366
Vera Cruz,	10 1	152
Bordeaux,	14 1	224
Constantinople,	1 3	17
Odessa,	10 2 3	145
Bahia,	10 1	10
Rouen,	11 2	179
Lindstrana,	2 2 3	33
Palermo,	10 6 1	155
Anema,	3 9 2	52
Naples,	25 cks.	90
Genoa,	10 t. 18	170

Disinfectants—

Bombay,	2 t. 10 c.	£24
B. Ayres,	17 2 q.	10

Farina—

Maranham,	25 kgs.
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Guano—

Passages,	100 t.	£254
Vera Cruz,	1	9

Limestone—

New York,	5 cs.
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Litharge—

Oporto,	4 cks.
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Magnesia—

Vera Cruz,	5 cs.
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Magnesium Chloride—

Bombay,	26 t. 1 c.	£69
Nantes,	4 17	13

Magnesium Sulphate—

Bombay,	260 bgs.
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Manganese—

St. Petersburg,	55 t. 15 c.
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Manure—

Havre,	100 t. 5 c. 2 q.	£594
Marseilles,	110 5	584

Metallic Sodium—

New York,	1 t. 10 c. 2 q.	£448
Rotterdam,	1 19 3	409

Mineral White—

Maranham,	25 bgs.
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Muriatic Acid—

Rio Grande,	3 c.	£2
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Orchil (liquor)

Boston,	7 cks.
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Oxalic Acid—

Fiume,	4 t. 13 c. 1 q.	£125
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Paint—

Colombo,	1 cs.
Hamburg,	30 kgs.
Havana,	4 cks.
Malaga,	6 brls.
Matanzas,	9
Ponce,	1
San Juan,	150
Sierra Leone,	42
Underhill,	6 pkgs.
Valparaiso,	7 cks. 6 dms.
Callao,	9
Quayaquil,	5 cs. 10 kgs.
Kingston, Jam.,	20
Ligbon,	15 brls.
Matanzas,	4
Mollendo,	3 3
Para,	7
Punta Arenas,	23 1

Painters' Colours—

Autofagasta,	25 cks.	15 brls
Barcelona,	17 dms.	
Bilbao,	8	
Boca,	28	600 tins
Bombay,	3 914 kgs.	17 cs
Boston,	31 2	100 brls.
B. Ayres,	24 3	64
Callao,	150	6 tcs.
Ibrail,	5	
Lisbon,	2	1 cs.
Melbourne,	100	
Rio de Janeiro,	80	
Rosario,	34	
Toronto,	20	
Vera Cruz,	29	
Akassa,	80	
Arica,	4 90	350 brls.
Nassau,	17	1
New York,		
St. John's, Nfld.,		
Santiago de Cuba,		
Talcahuano,	10	
Valparaiso,	50	
Yokohama,	60	

Paraffin Wax—

Cephalonia,	7 bgs.
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Phosphorus—

Vera Cruz,	8 cs.	£100
Yokohama,	5	64
Kobe,	5	64
Shanghai,	5	50
Hiogo,	30	390
Hong Kong,	2	26

Potassium Bicarbonate—

Leghorn,	4 t. 18 c. 2 q.	125
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Potassium Chlorate—

Gothenburg,	2 t. 10 c.	£141
Stockholm,	5	336
Naples,	1 2	62
Copenhagen,	6 10	361
Hamburg,	1 10	87
Boston,	1 10	88
Rio de Janeiro,	2	122
Vera Cruz,	1 1 q.	6
New York,	5	301
Ghent,	1 10	90
Rotterdam,	4	242
Yokohama,	3	170
Shanghai,	5	283

Potassium Prussiate—

Genoa,	9 c. 1 q.	£35
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Salt—

Algoa Bay,	17 t. 18 c.
Alligator Pond,	5
Amsterdam,	204
Antwerp,	50
Benin,	5 7
Bonny,	20
Boston,	200
B. Ayres,	5
Calcutta,	4,899
Cameroons,	85
Canada,	250
Esquimalt,	100
Gr. Bava,	5
Iceland,	98
Kingston, Ont.,	250 10
Lagos,	40
Montreal,	441
Newcastle,	200
Para,	240
Paspebiac,	185
Rotterdam,	204
St. John's, Nfld.,	15
San Francisco,	342
Sherbro,	50
Trinidad,	49 17
Wilmington,	556
Akassa,	400
Bakana,	53 17
Barbadoes,	20
Boma,	54 5
Buguma,	22 5
Chittagong,	295
Copenhagen,	780
Dixcove, W. C. A.,	17 10
Ghent,	100
Hamburg,	27 5
Manaos,	15
Nogai,	62 10
Old Calabar,	62 10
Opobo,	100
Salt Pond,	50
Sierra Leone,	150
Victoria, B. C.,	200

Salt Cake—

Antwerp,	100 t.	£104
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Saltpetre—

Santos,	4 t. 18 c. 1 q.	£114
Para,	31 3 2	647
Gr. Canary,	3	54
Carthage,	3 16 2	70
Piræus,	7 10	160
Syra,	3 19 1	83

Sheep Dip—

B. Ayres,	25 t. 4 c. 2 q.	£504
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Sodium Bicarbonate—

Alexandria,	20 brls.	
Antwerp,	20 cks.	
Bombay,	415 kgs.	
Bordeaux,	10	160
Bourgas,	40	
B. Ayres,	20	
Carthage, N. G.,	40	
Genoa,	10 30	
Hamburg,	20 46	
Havana,	30	
Piræus,	13	
Quebec,	50	
Santander,	10 40	
Seville,	14 3 122	
Stockholm,	6 6	
Sydney,	20	
Karachi,	60	
Lisbon,	40	
Nantes,	20	
Rotterdam,	5 100	
Rouen,	34	
Toronto,	100	

Sodium Carbonate—

New York,	56 brls.
Barcelona,	138 cks.

Sodium Chlorate—

Hamburg,	1 t.	£70
Antwerp,	5 kgs.	

Sodium Oxide—

New York,	9 cs.
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Sodium Silicate—

Galatz,	10 brls.
Humacao,	13
Lisbon,	4
Malta,	12
Melbourne,	8
Mollendo,	4
Piræus,	44
Santander,	70
Sydney,	12

Sodium Sulphate—

Seville,	1 t. 9 c. 3 q.	£5
Bombay,	90 bgs.	

Sulphur—

Santos,	9 t. 16 c. 1 q.	£63
Philadelphia,	80 2	309
Montreal,	18	201
Boston,	200 8	772
Antwerp,	25	97
Para,	7 10	65
Canada,	15	71

Sulphuric Acid

Rio Grande,	1 t. 1 q.	£11
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Superphosphate of Lime—

Nantes,	75 t. 4 c.	£179
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Soap—

Algoa Bay,	2,970 bxs.
Alligator Pond,	50
Antwerp,	212
Aux Caye,	200
Axim,	44
Batavia,	2,000
Bermuda,	85
Bombay,	500 20 cs.
Bonny,	450
Calcutta,	500 75
Cape Town,	550 30

oil,	85	
	360	200 cs.
	280	
	30	1
	40	5
	150	30
phia,	500	1
beth,	280	
il,	22	
's, Nfld.,	200	
ne—	10 t.	£40
kali—	35 brls.	
	120	
	90	
	32	
	35	
h—	20 kgs.	
	19 cks. 280 bgs. 28 tcs.	
	20 brls.	
tinople,	11	
igen,	100 kgs.	
	129	
	20	
il,	98 cks.	13
rk,	1,146	64
phia,	400 bgs.	
abellio,	20	
er,	22 cks.	
re,	103	
	100 bgs.	
	200	
urg,	6	
	3	
	10	
Janeiro,	100 brls.	
	50	
ystals—		
ay,	10 cks. 25 kgs.	
ria,	20 brls.	
	280	
rk,	56	
	34 bgs.	
abeth,	50 brls.	
iso,	10 cks.	
c Acid—	3 c. 2 q.	£19
line—		
renas,	12 dms.	
l—	2 cs.	
Janeiro,	2	
's, Nfld.,	5 cks.	
	1 cs.	
la,	2 dms.	

HULL.

Week ending August 5th.

nia,	2 cks.	
ium Sulphate—		
rg,	178 bgs.	
am,	972	
dm,	233	
	150	
rk,	15 cs.	
k,	24 cks.	
ng Powder—		
	100 cks.	
	20	
	14	
ork,	54	
	111	
aste—		
p,	146 bgs.	
olm,	2 cks.	
	4	
	10	
Soda—		
n,	10 dms.	
	66	
	240	
	65	
g,	16 cks.	
	2	
als (otherwise undescribed)		
l,	20 cks. 3 cs. 1 pkge.	
n,	1	
ania,	18	

Copenhagen,	1	5
Gothenburg,	21	12
Genoa,	28	3
Ghent,	4	
Hamburg,	4	176 8 pks
Helsingfors,	3	
Leghorn,	19	
Marseilles,	3	2
Naples,	50	8
Riga,	18	
Rotterdam,	18	90 204 17 pkgs.
Stavanger,	1	
Stockholm,	1	
St. Petersburg,	111	5 pks.
Stettin,	52	1 cs. 2
Wasa,	4	

Copper Sulphate—

Stettin, 10 cks.

Cottonseed Oil—

Amsterdam, 20 c.

Copenhagen, 100

Flushing, 100

Gothenburg, 203

Hamburg, 424

Leghorn, 139

Marseilles, 100

Rotterdam, 1,776

Cresote—

Dunkirk, 100 cks.

Gothenburg, 150

Hamburg, 10

Dyestuffs (otherwise undescribed)

Christiania, 2 bls.

Rotterdam, 7 1 ck.

Linseed Oil—

Abo, 41 c.

Bergen, 99

Bremen, 34

Christiania, 400

Copenhagen, 17

Drontheim, 69

Hamburg, 447

Helsingfors, 808

Rotterdam, 40

Stavanger, 24

Mineral White—

Antwerp, 50 bgs.

Naphtha—

Copenhagen, 3 dms.

Ochre—

Copenhagen, 25 cks.

Painters' Colours—

Abo, 2 cks.

Amsterdam, 19 2 cs.

Antwerp, 18 4 24 pkgs.

Boston, 8 pks. 69

Christiansund, 108 dms

Christiania, 1.

Christiansand, 30

Copenhagen, 9 1

Dunkirk, 2

Drontheim, 1 35

Flushing, 1

Gothenburg, 1

Ghent, 10

Hamburg, 28 1 8 pks.

Harlingen, 4

Hango, 5

Konigsberg, 12 10

Marseilles, 8 2

Naples, 10 1 64

New York, 160

Rouen, 1

Riga, 2

Rotterdam, 12 2 16

Stockholm, 1

St. Petersburg, 252

Stettin, 30 1

Phosphate—

Norrkoping, 407 bgs.

Pitch—

Antwerp, 356 t.

St. Petersburg, 4 cks

Wyburg, 46

Soap—

Christiania, 17 cs.

Copenhagen, 3

Rotterdam, 30

Strontia—

Stettin, 57 cks.

Tar—

Abo, 15 cks.

Amsterdam, 5

Copenhagen, 42

Genoa, 6

Konigsberg, 3

Stettin, 5

Wyburg, 30

Turpentine—

Rotterdam, 1 bl.

Yarnish—

Antwerp,	1 cs.	
Copenhagen,	1	
Genoa,	5	2 cks.
Ghent,	1	
Leghorn,	3	
Rotterdam,	1	4

GLASGOW.

Week ending August 10th.

Ammonium Sulphate—

Nantes, 15 t. 1½ c. £180

Bleaching Powder—

Geneva, 12 t. 15 c. £110

Coal Products—

Pitch

Boston, 31 t. 4 c. £55

Rotterdam, 103 70

Tar

Boston, 36 t. 15 c. £80

Philadelphia, 35 13 79

Coal Tar Products (otherwise un-

described)—

Rotterdam, 10 dms. £90

Cottonseed Oil—

Hungary, 5 t. £118

Rotterdam, 3 60

Dried Blood—

Nantes, 10 t. 10 c. £70

Linseed Oil—

Malta, 3 t. 9½ c. £78

Cape Colony, 19½ 25

Halifax, 5 2 115

Paint—

Malta, 4 t. 16 c. £69

Cape Colony, 21

St. John's, Nfld., 2 14½ 36

Painters' Colours—

New York, £23

Paraffin Wax—

Geneva, 16 t. 9 c. £501

Italy, 14 5½ 838

Hungary, 18 4 395

Nantes, 3 11½ 100

Potassium Bichromate—

Geneva, 7 t. 7½ c. £207

Amsterdam, 14 cks. 176

Rotterdam, 4 80

Soap—

St. John's, Nfld., 2 t. 12 c. £40

Sodium Bichromate—

Geneva, 20 t. 5 c. £704

Sulphur—

Hungary, £90

Sulphuric Acid—

Cape Colony, £25

TYNE.

Week ending August 5th.

Alkali—

Genoa, 5 t. 15 c.

Alum—

Rotterdam, 10 t. 2 c.

Antimony—

Antwerp, 1 t.

Hamburg, 5

Barcelona, 1

Asbestos—

Bergen, 1 c.

Copenhagen, ½

Barytes—

Hamburg, 100 t.

Blanc Fixe—

Copenhagen, 4 t. 2 c.

Bleaching Powder—

Christiania, 15 t. 7 c.

Rotterdam, 22 4

Odense, 4 5

Antwerp, 134 2

Hamburg, 45 15

Konigsberg, 2 1

Copenhagen, 7 5

Genoa, 60 7

Drontheim, 10 4

Gothenburg, 5 5

San Francisco, 32 16

Calcined Magnesia—

Genoa, 6 c.

Caustic Soda—

Wyburg, 3 t. 6 c.

Hamburg, 35 10

Konigsberg, 5 2

Genoa, 34 13

Stockholm, 4 18

Gefle, 4 18

Copenhagen, 1 10

China Clay—

San Francisco, 5 15

Copper Sulphate—

Helsingfors, 401 t. 7 c.

Litharge—

Christiania, 17 c.

Rotterdam, 5

Hamburg, 2 13

Copenhagen, 1 13

Genoa, 11

Gothenburg, 1 9

Magnesia—

Antwerp, 2 c.

Hamburg, 15

Genoa, 3

Barcelona, 11 t. 13

Paint—

Hamburg, 2 t.

Bergen, 12 c

Barcelona, 12

Painters' Colours—

San Francisco, 11 c.

Antwerp, 10

Phosphorus—

Barcelona, 8 c.

Soda—

Christiania, 15 t. 6 c.

Rotterdam, 23 16

Wyborg, 1 3

Odense, 10 15

Antwerp, 21 8

Copenhagen, 2 18

Genoa, 20

Soda Ash—

Christiania, 6 t. 12 c.

Ghent, 5 8

Konigsberg, 80 7

Stockholm, 100 2

Gothenburg, 100 10

Sodium Silicate—

Bilbao, 5 t. 14 c.

Sodium Sulphate—

Konigsberg, 15 t. 4 c.

Sulphate of Lime—

Genoa, 3 t. 2 c.

Sulphur—

Christiania, 50 t.

Antwerp, 35 1 c.

Sarpsborg, 500

Gothenburg, 20

Superphosphate—

Halmstad, 150 t. 1 c.

Tallow—

Hamburg, 14 c.

Tar—

Arendal, 4 t.

White Lead—

Stockholm, 1 t. 5 c.

GOOLE.

Week ending August 2nd.

Chemicals (otherwise undescribed)

Antwerp, 6 cks.

Boulogne, 53

Rotterdam, 37

Coal Products (otherwise undes.)

Boulogne, 34 cks.

Ghent, 59 4 cs.

Rotterdam, 53

Dyestuffs (otherwise undescribed)

Antwerp, 1 cks.

Boulogne, 3

Ghent, 2 1 dms.

Hamburg, 7 10

THE CHEMICAL TRADE JOURNAL

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THE AMERICAN CHEMIST.

ON Monday last the Congress of Chemists was opened in connection with the World's Fair at Chicago. Whatever misfortune may have befallen the Exposition taken as a whole, rendering the same a burden to the promoters rather than a subject for bumptious boasting, there is no reason why this gathering of chemists should not be a most influential and inspiring one. Though some countries are disposed to remove their exhibits, they evidently do not intend to carry their animosity to such a length as to prevent their scientists assisting in adding to the utility of this Congress.

Numbers of distinguished foreign chemists have prepared papers which are to be read, and, though there are, of course, a great number in all, there are some fourteen at least likely to prove of exceptional interest, as they are coupled with the names of men who have a reputation for dealing thoroughly and practically with the subjects they take in hand. It would be impossible to give an abstract of even the pick of the papers, but we trust to be able to place before our readers in due course a *résumé* of some of those of chief interest, as there are one or two burning questions named for treatment, by men who are especially fitted to offer suggestions on the subjects they have chosen respectively.

It has been said by a well-known professor that chemistry is to-day a German science. It truly does seem so in a certain measure when it is remembered that their works' laboratories are models of what a laboratory should be, and also that in such a laboratory sometimes as many as sixty chemists are engaged, about twenty-six of whom are skilled in chemical research. Fortunately, we are now by no means dead to the fact that it is high time something was done in this country to improve the *status* of our educational code, but complaints are plentiful, that it takes money to make the changes which experience teaches us are desirable.

Many of our colleges are lamentably poor, so poor that even the necessities for lecture demonstration have frequently to be extemporised.

But with the Americans this cannot be said to be the case; with them money is plentiful. The assistance given by the State has been shown up in these columns in the past in a favourable light, not only in connection with agricultural chemistry, but in relation to the treatment of sewage and kindred matters. Their colleges, moreover, are mostly well endowed, some of them being so bountifully provided for that they are in a position to help those who are less fortunate, several being favoured with an endowment amounting to millions. Yet, somehow, the American chemists as a class do not take the position which might reasonably be expected of them.

An excellent opportunity is surely given for training and technically educating young chemists in America in such a way as to make chemistry in the future an American rather than a German science, when, in addition to the wealthy universities already existing, it is anticipated that the

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Advertisements intended for insertion in the current week's issue should reach the office by Wednesday morning at the latest.

Stanford University of California will before very long have attached to it such valuable property as will bring in the princely annual income of £2,000,000. The responsibilities which devolve on those who have the control of this large sum are, we understand, fully recognised, and the disposal of this income might form, we should think, a fitting subject for discussion at the Congress which is now sitting. Though we are to the best of our ability endeavouring to rear our young chemists at home, and hope to be able to do so completely in the future, we think it is hardly likely that the fact of our cousins across the pond having perfect training grounds should be the cause of any heart burnings on this side. On the contrary, it is desirable, we think, that the relations between our leading chemists here and in America should be strengthened, and trust that the present Congress, which is being attended by chemists of all nations, will lead to some such consummation.

ALKALI WASTE AS MANURE.

MANY attempts have been made to introduce alkali waste to the notice of agriculturalists, not altogether without result; and although the quantity so disposed of—that is, simply carted away by the farmer free of cost—is inconsiderable as compared with the production, yet it has amounted in some years to many thousands of tons. Farmers say that a top-dressing of waste, provided it is put on the land at the proper time, and left for a reasonable period to give off any excess of sulphur that it may contain before being ploughed in, acts not only as a cleanser of the ground, a destroyer of slugs and the seeds of weeds, but actually as a fertilizer. Nor are they without reliable data to go upon in so saying. Alkali waste is composed of lime and sulphur, and all farmers know well enough, without being told, the agricultural value of both these ingredients. Some years ago the chief manufacturers of Widnes formed a committee for the special purpose of testing this question, and to a certain extent succeeded in arousing interest in it. A good deal of waste was sent away, and where carefully and watchfully experimented with, it proved distinctly successful in producing, or helping to produce, bright, clean, healthy crops, both of grain and roots. There is no doubt at all that much more waste would have been tried by agriculturalists in probably all parts of the country only for a serious drawback in the way of means of transit. The railway companies did not like to carry it, and consequently its dissemination throughout the country became impossible. There is undoubtedly a great deal in this question, however, from a farmer's point of view, and if any of our agricultural friends are aroused to an interest in it, we are in a position to refer them to those who can give every information on the subject. We consider that the best proof of the usefulness of the article is attested by the fact that it is used in considerable quantities, both by itself and mixed with other manures, by the farmers who are close to or within a few miles from the works, to whose farms it is common to see successions of teams carting it away.

OUTPUT OF BRITISH MINERALS.

THE Home Office has recently issued the annual statistics, showing the output of the principal minerals produced in the United Kingdom of Great Britain and the Isle of Man during the past year (1892), from which the following abstract has been prepared. The total value at the mines and works of the thirty-two different kinds of minerals which the country produced was £82,350,760, a decrease of £8,887,272, as compared with 1891. Towards the total figure, coal contributed £66,050,451. (a decrease of £8,049,365.); stone, £8,667,736., and iron ore £2,970,632. The habitat of the minerals also is interesting. Arsenic comes altogether from Cornwall, Devonshire, and Glamorganshire; aluminium from Northumberland, and a little from Worcestershire; cobalt and nickel from Flintshire, but no cobalt or nickel ores were raised during 1892; gun flints from the Lingheath mines, at Brandon; gypsum chiefly from Nottinghamshire and Cumberland; magnesium and bismuth from Lancashire; petroleum from Derbyshire and North Staffordshire; phosphate of lime principally from Cambridgeshire; plumbago from Cumberland, though none was raised last year; potassium from Lancashire; sodium from Durham, Lancashire and Worcestershire; uranium ore from Cornwall; and wolfram also from the same duchy.

In the table which follows, the quantities and values are given for 1892, whilst for the sake of comparison the quantities for 1891 are also shown. It will be seen on comparing the various items, that like last year there has been a nett decrease in the output, the only items which show an increase being fluorspar, jet, petroleum, phosphate of lime, slates, uranium and zinc ores. The following are the returns:—

TABLE I.

GENERAL SUMMARY OF THE MINERAL PRODUCE OF THE UNITED KINGDOM AND THE ISLE OF MAN.

Description of Mineral.	Quantity.		Value at the Mines and Openworks.
	1891.	1892.	
Alum clay (bauxite) .. Tons	10,763	7,322	£ 1,860
Alum shale "	5,474	2,922	365
Antimony ore "	154	6	98
Arsenic "	6,048	5,114	43,686
Arsenical pyrites "	5,095	4,497	4,988
Barytes "	26,876	24,247	29,283
Bog ore "	16,075	15,363	7,681
Clays (excepting ordinary clay) "	3,222,035	3,103,852	889,375
Coal "	185,470,126	181,786,871	66,050,451
Copper ore "	8,836	5,995	11,953
Copper precipitate "	322	270	3,112
Fluor spar "	141	171	188*
Gold ore "	14,117	9,990	9,168
Gypsum "	151,708	147,540	58,227
Iron ore "	12,777,689	11,312,675	2,970,632
Iron pyrites "	15,463	13,967	6,957
Jet Lbs.	766	929	185*
Lead ore Tons	43,859	40,024	296,484
Lignite "	4,664	4,247	1,062
Manganese ore "	9,476	6,078	4,434
Ochre, umber, etc. "	13,602	12,131	16,782
Oil shale "	2,361,119	2,089,937	522,484
Petroleum "	100	218	409*
Phosphate of lime "	10,000	12,200	22,250*
Salt "	2,043,571	1,956,524	861,401
Slates and slabs "	415,029	418,241	1,025,922*
Stone, etc. "	—	—	8,667,736
Strontia sulphate "	8,061	5,066	1,266
Tin ore "	14,488	14,329	734,565
Uranium ore "	31	37	740*
Wolfram "	138	125	3,000
Zinc ore "	22,216	26,880	104,016*
Total value "	—	—	82,350,760

On comparing the facts which a study of the returns for 1890 and '91 revealed, with those disclosed by the figures for 1891 and '92, a considerable difference in the situation is noticeable. In 1890 and '91, despite the nett decrease there were several items showing considerable increase, notably barytes, bog ore, and coal. With the present figures there is a distinct decrease in each of the items just named, while those which now show an increase, only show an insignificant one, with the exception perhaps, of petroleum, zinc ore, and phosphate of lime. Amongst those that show a decrease, manganese ore and bauxite are very noticeable. Of cobalt and nickel ores, none were raised, which was also the case in 1891. There is again a falling off in the production of salt, though it is not so large as it was in 1891.

Considering the depression which has prevailed in the Scottish oil industries, the decrease in the output of oil shale is not so large as might, perhaps, have been expected.

In addition to the general summary of the mineral products of the United Kingdom, the returns contain tabulated details of the production of the various minerals mentioned in the foregoing, from which we cull the following figures:—

The highest average monthly price paid for best selected British copper during 1892 was £53. per ton, and the lowest price was £47. 10s., the mean price for the year being £49. 18s. 10d., while the corresponding price for foreign copper (Chili bars) was £45. 15s. 7d. Some interesting figures as to the amount of burnt cupreous iron pyrites which have been treated at the various mineral extraction works of Great Britain are furnished by Mr. T. W. Bird, of Liverpool. The total amount of burnt ore treated in 1892 was 367,442 tons, the estimated yield being 1,690 ozs. of gold, 293,953 ozs. of silver, and 13,228 tons of metallic copper.

An interesting table, showing the amount of manganese ore imported into the United Kingdom from sources other than those already mentioned, is given in the statistics which we give below:—

TABLE II.

JAPANESE ORE IMPORTED INTO THE UNITED KINGDOM.

Countries whence Imported.	1892.	
	Quantity.	Value. *
Australasia	Tons. 1,518	£ 4,328
North America	—	—
India	51,854	162,721
China	3,390	10,453
Japan	—	—
Other countries	4,270	10,658
Totals	109,823	341,515

Production of oil shale, though on the decrease, is, we think, of importance to warrant the reproduction of the following

TABLE III.

THE PRODUCTION OF OIL SHALE IN 1892.

County.	Quantity.	Value at the Mines.
GLAND AND WALES.	Tons.	£.
North Wales	1,981	3,215
South Wales	70	
Cardiff	1,872	
Other	4,663	
East and West Ridings	4,275	3,215
Totals	12,861	
SCOTLAND.		
North Ayrshire	803,888	519,269
West Ayrshire	109,839	
East Ayrshire	104,338	
Other	22,281	
West and Renfrewshire	1,032,312	519,269
Other (included with Lanarkshire)	4,418	
Totals	2,077,076	519,269

Amount of phosphate of lime raised in 1892 is one of the few to show an increase, and as the imports of the same article have increased, we append the following particulars:—

TABLE IV.

IMPORTS OF PHOSPHATE OF LIME.

Countries whence imported.	1892.	
	Quantity.	Value.
France	Tons. 65,079	£ 89,746
Spain	18,239	37,126
Italy	971	1,788
United States of America	201,565	469,967
East India Islands	6,648	18,730
West India Islands	7,814	17,763
Other countries	2,473	3,860
Totals	11,341	26,709
Totals	314,130	665,689

A subject which naturally has interest for a great many of our readers, and doubtless they will like to learn which countries form the markets for this product. In the table, herewith, the figures will be found:—

TABLE V.

QUANTITY AND VALUE OF SALT (ROCK AND WHITE) EXPORTED FROM THE UNITED KINGDOM.

Countries to which Exported.	1892.	
	Quantity.	Value.
Russia	Tons. 12,996	£ 6,854
Sweden and Norway	19,481	10,851
Denmark	32,898	14,884
Germany	21,484	11,733
Holland	15,123	4,398
Belgium	28,595	18,140
West Coast of Africa	33,441	41,629
British East Indies	261,185	179,122
Australasia	45,655	56,702
British North America	62,071	49,245
United States of America	91,322	108,292
British West Indies	5,324	7,359
Foreign West Indies	11	97
Chile	9,420	9,396
Brazil	3,259	4,429
Other Countries	11,871	16,131
Totals	654,136	539,262

In addition to the statistics for the United Kingdom alone, seeing that large quantities of various minerals are imported from abroad, we give the following abstract of the summary of the output of minerals and metals produced in the British Colonies and possessions for the year 1892, which is as follows:—

TABLE VI.

PRODUCTION OF MINERALS AND CERTAIN METALS IN THE BRITISH COLONIES AND POSSESSIONS.

Abstract of General Summary.

Description of Mineral.	1892.	
	Quantity.	Value.
Asbestos	Tons 8,074	£ 206,399
Barytes	nil.	nil.
Coal (including some coke)	10,649,346	4,625,569
Cobalt ore	Cwts. 23	470
Gypsum	Tons 184,638	40,990
Kauri gum	8,388	437,056
Manganese ore	2,393	6,153
Mica	—	15,903
Nickel	Tons 2,065	570,392
Ochre	nil.	nil.
Oil shale	40,349	78,160
Petroleum	{ Gals. 6,136,495	31,794
Phosphate of lime	{ Brls. 755,298	206,408
Platinum	Tons 23,021	39,169
Pyrites	Ozs. —	2,055
Salt	Tons 77,509	213,042
	1,066,409	392,191

In conclusion, we regret that owing to the limitations of our available space, we can only give an abstract of the returns, but should any of our readers desire further information, we shall be pleased to do our best to supply the same.

PREPARING RED PIGMENTS.—With a view to obtaining a red pigment composed of ferric oxide the following process has been patented, the method being specially intended for the treatment of blue billy. This compound is heated in a retort with ammonium sulphate. Ammonia is driven off and sulphate of iron formed, the latter being decomposed by raising the temperature to a low red heat when Nordhausen sulphuric acid is given off and ferric oxide left in the retort. A small amount of lead nitrate or iron nitrate may with advantage be added to the first charge of blue billy and ammonium sulphate, the gases given off being led into a second retort containing blue billy, air and steam.

Official Memoranda.

(From the Board of Trade Journal.)

THE METAL PRODUCTION OF GERMANY.

THE quantity of iron ore obtained in Germany amounted in 1892 to 11,539,235 tons, valued at 41,279,000 marks, and of iron produced to 4,913,174 tons, with a value of 227,948,000 marks. The corresponding figures for 1891 are, quantity of iron ore produced 10,657,522 tons, valued at 39,408,000 marks, and of iron 4,619,600 tons, valued at 231,119,000 marks.

Zinc is produced in Germany almost exclusively from domestic ores, as the importation of zinc ores into the German Customs district very little exceeds the exportation.

Of the entire amount of zinc ore obtained in Germany (in 1891, 793,554 tons valued at 25,000,000 marks, and in 1892, 800,167 tons, with a value of 21,000,000 marks), the province of Silesia yields about four-fifths, the rest coming principally from the Rhine Province and Westphalia. The amount of zinc produced in the German Empire increased from 58,386 tons, valued at 23,000,000 marks in 1872 to 139,353 tons, valued at almost 63,000,000 marks in 1891, and to 139,938 tons, valued at 55,000,000 marks in 1892. This is an increase of 139 per cent. in 20 years.

In 1891 there were in operation altogether 28 zinc foundries, employing 9,586 workmen. Besides these, there were three others in which zinc was a secondary product. Of these zinc foundries two were situated in the Government district of Oppeln, the most important being the two "Silesia" foundries near Lipine, the Hohenlohe Foundry and the Wilhelmine Foundry, near Schoppinitz, which, in 1891, turned out more than 10,000 tons. Not one of the seven foundries in the Rhine Province and Westphalia produced in 1891 less than 5,000 tons. More than one-third of the entire world's production of zinc (according to a French authority, 368,000 tons were produced in 1890) comes from the German Empire. Next in importance are Belgium (83,000 tons in 1890) and the United States (about 58,000 tons).

Lead in Germany is produced chiefly from potters' ore (*Bleiglanz*), which generally contains silver. This comes from the vicinity of Aix-la-Chapelle, the Harz Mountains, Silesia, the neighbourhood of Ems, and in part from abroad. In 1891, in the German Empire, 159,215 tons of lead ore, valued at 16,656,000 marks, were produced. In 1892 the figures were 163,372 tons and 14,688,000 marks.

There were in 1891, 13 lead foundries in operation, exclusive of 10 in which lead was a secondary product. Of these, two were in the Government district of Oppeln, four in the Harz Mountains, two in the district of Wiesbaden, four in the district of Aix-la-Chapelle, and one elsewhere. The largest amount of lead (over 20,000 tons) was produced in 1891 in the Mechnich Foundry in Aix-la-Chapelle, over 10,000 tons being produced by the Royal Friedrichs Foundry in Silesia, and by the Münsterbuscher Foundry, near Stolberg.

Among lead-producing countries Germany is third, only Spain and the United States producing larger quantities. The total production of the world in 1890 was estimated at 646,000 tons. From this it appears that about one-seventh of the world's production of lead is German.

The heaviest production of copper in Germany is at the Mansfeld works. On an average the ore in these mines does not yield more than 2½ per cent. of copper, and from 4 to 5 kilogs. of silver to each ton of finished copper. The Duisburg Foundry and the Königs Foundry, in Silesia, use foreign (Spanish and Portuguese) copper ore, as do also two foundries in the Hamburg free port district. Copper is also obtained in Westphalia and the lower Harz mountains.

The entire amount of copper produced in the German Empire in 1872 was 6,356 tons. In 1891 24,092 tons (about four times as much), valued at 28,000,000 marks, and in 1892, 24,778 tons, valued at 24,754,000 marks, were produced. Of the total amount obtained in 1891, Prussia yielded 20,448 tons. The copper production of the entire world in 1890 was estimated at 270,000 tons, of which the United States supplied 116,000 tons, Spain and Portugal 52,000 tons, and Chili 26,000 tons. Of the entire amount Germany supplied about 9 per cent.

Silver is obtained in Germany from domestic lead and copper ores, and also from foreign ores, chiefly Central and South American. In 1872 there were 127,007 kilogs., valued at about 23,000,000 marks, produced. In 1891 the production amounted to 444,852 kilogs., valued at 59,000,000 marks.

About one-tenth of all the silver produced in the world is German. The entire production of the world in 1891 was, according to the estimate of the United States Mint, 4,465,822 kilogs.

The gold production of the German Empire obtained chiefly from ores, from which silver is taken, amounted in 1872 to 328 kilogs., worth nearly 1,000,000 marks. In 1891 there were produced 3,077 kilogs.

(nearly ten times as much) valued at 8,568,000 marks, and in 1891 2,877 kilogs., valued at 8,005,000 marks. Of the 1891 product Hamburg works produced 1,992 kilogs., valued at 5,500,000 marks. Large quantities are also produced by the fiscal works at Freiberg, the Communions Foundry at Oker, and the foundry at Lautenthal. The entire gold production of the world in 1891 was, as estimated by the United States Mint authorities 188,531 kilogs.

The above figures show that of the entire production of the German Empire in 1891 was: zinc, 38 per cent.; lead, 15 per cent.; copper, 9 per cent.; silver, 10 per cent.; gold, 1½ per cent.

THE JAPANESE CAMPHOR TRADE.

Mr. J. J. Enslie, Her Majesty's Consul at Hiogo, in his report to the Foreign Office on the foreign trade of that district for the year 1913, writes with respect to the camphor trade and production of Japan as follows:—

The total purchases of foreign exporters reached 1,713 tons, which is below the business of an average year. Prices ruled in favour of Japanese producers, the lowest having been 35 dols. per picul of 133 lbs. in May, and the highest 63 dols. in December.

These figures represent common crude, which during the year has been doctored and adulterated worse than ever, in spite of high prices paid, and the strong protests of purchasers, some of whom absolutely refuse to have dealings in camphor, which has not drawn the warehouses during at least 48 hours.

The Formosa drug threatens Japan's monopoly, whenever war breaks out the interior can be conducted regularly and free from the dangers of the aborigines.

The camphor tree of Japan is a huge evergreen of singularly symmetrical proportions and not unlike a linden. Its blossoms are white flowers, and it bears a red berry. Some of the trees are 10 feet in diameter, and are upwards of 300 years old.

In times gone by camphor was produced in Sumatra and Borneo, and in other parts of the East Indies, as well as in China; now, however, the crude camphor of commerce is a product of Japan almost exclusively, the Formosa supplies having since the war been almost entirely cut off. China and France have been very small and uncertain until lately, when the industry was resumed by a German syndicate, upon concessions obtained from the Chinese Viceroy of the island, leading to increased production.

However, great difficulties remain to be surmounted before the trade can be depended on, for the trees are only found inland, the inhabitants are aboriginal barbarians, who make matters unpleasant for explorers.

The Formosa drug is inferior to the Japanese, the latter by reason of its greater purity, pinkish colour, and bold grain, commanding foreign countries higher prices, by some two per cent. or three per cent. in spite of its comparative abundance.

The annual export of Japan camphor averages about 5,000,000 lbs., of which about one quarter reaches the United States of America direct or *via* Europe, the remainder being shipped to Europe, and a small quantity sent to India.

The districts in Japan famed for camphor trees are Kishikoku, Iga, Suruga, Isé, and Kishiu. The forests, owned by the Government, are now almost denuded of timber, and very little will be left in a few years hence. However, the Government forests are still very rich in camphor trees, and it has been estimated that this alone will maintain annually, during the next 25 years, the full average supply of camphor.

Formerly very little care was bestowed upon the preservation and cultivation of this valuable timber. More recently, however, not only the Government, but also the people, have been giving the most important question the attention it long ago deserved. Numerous young trees have now been planted, and their growth is being carefully tended. Consequently, although hitherto the youngest wood which camphor was extracted was about 70 or 80 years old, it is expected that under present scientific management the trees will give equally good results after 25 or 30 years.

The roots contain a much larger proportion of camphor than the trees, 10 lbs. of crude camphor out of 200 lbs. of wood-chips being thought satisfactory. The Suruga timber yields a much smaller percentage.

In the village of Kochi (Tosa) there is a group of 13 trees about 100 years old; it has been estimated that they will produce 40,000 lbs. of crude camphor, and are worth, as they now stand, 4,000 silver dollars.

It appears that the only process of extracting camphor from the trees is among the mountains in this Empire, and the materials used, are of the roughest and most unscientific description. The wood-chips are broken up by the vapour being conducted into a receptacle containing several partitions surrounded by cold water. In the sides of these partitions are apertures alternating contrarily, which, when open, cause the vapour to fill the divisions by a circuitous route, thus improving the quality of the camphor.

the article is brought to market, as a rule, in very rudely made wooden tubs.

Each tub is carefully sampled, vertically and diagonally, samples are tested by fire and sometimes by alcohol. If no terant is discovered, the condition of the drug is next into, the difficulty of this step being best explained by at once this crude camphor contains a quantity of water, or oil and lying anywhere between 5 per cent and 20 per cent. To overcome the rest is comparatively easy, and consists in cutting, mixing, and packing for shipment, the packing is prepared on the premises, partly out of the original

the camphor cannot be packed in its present condition, has to be drained and dried, and frequently a special parcel must be bought, at a very high figure, for mixing with it.

THE NEW LABORATORY AT GUAYAQUIL.

Chambers, Her Majesty's Consul at Guayaquil, gives the particulars of a chemical and industrial laboratory recently Guayaquil:—

The name of "Laboratorio Químico é Industrial," Messrs. Ontaneda, and Co., first-class druggists of this city, have general scientific laboratory in Guayaquil.

Opening ceremony was witnessed by thousands of interested, and from early morning until late in the afternoon the visitors was unchecked.

Over storey and wings of the building are divided off into compartments, each in itself a complete laboratory and Here we find mineralogy, zoology, and other "ologies" each its well-defined space without encroaching upon its

But foremost amongst these is the bacteriological department which Señor Ontaneda is the curator. Amongst other objects attract attention in the latter department is a complete collection of ranging from *Trichina* to the more recently discovered *Cholera morbus*. Neither trouble nor expense has been spared in the institution to a state of perfection unrivalled on the whole of the Pacific Coast of South America.

Subject of the laboratory, &c., is not merely that of experiment, since in connection therewith are to be established science in bacteriology, which will be under the professorship of Ontaneda.

Institution has supplied a long-felt want, and it is expected that the laboratory will not be wholly confined to the limited area of this but extend to a larger radius beyond.

THE CULTIVATION OF BEET IN EUROPE.

Following is a statement of the areas under beetroot in the countries in Europe (in hectares, hectare = 2.47 acres):—

	1893.	1892.	Increase in 1893.	Increase Per Cent.
	Hectares.	Hectares.	Hectares.	
.....	57,200	49,100	8,100	16.6
.....	27,328	23,358	3,970	16.2
.....	251,037	245,262	5,775	2.3
Hungary.....	343,300	327,300	16,000	4.8
.....	396,400	375,200	21,200	5.6
.....	340,893	305,672	35,221	11.5
Total.....	1,416,158	1,325,892	90,266	6.8

CONSUMPTION OF NITRATE OF SODA.

According to the *Bulletin du Musée Commercial*, it was in the year 1892 that the consumption of nitrate attained its maximum, namely, 830,000 tons for the whole world, of which 830,000 tons were taken by one. Since this period the annual world's consumption has been about 870,000 tons in 1892 and 845,000 in the year ending 1893. From 1877 to 1882 the world's consumption varied between 60,000 and 300,000 tons.

According to the order of importance the consuming European countries may be classed as follows, the figures indicating the average taken during the last few years:—Germany, 330,000 tons; England, 110,000; Belgium, 100,000; Holland, Italy and Spain, 10,000; America, 100,000 tons.

Principal ports at which the consignments are received are:—London, 300,000 to 350,000 tons annually; Dunkirk, 175,000; Antwerp, 70,000; Liverpool, 30,000; London 25,000; and 45,000. The other ports only receive relatively insignificant quantities.

Parliamentary Gossipings.

THE WAR OFFICE AND THE MANUFACTURE OF CORDITE.

IN the House of Commons last week Mr. Hanbury said: I beg to ask the Secretary for War whether (1) with a view to the introduction of a smokeless powder certain private inventors were invited to send in particulars of their inventions to the War Department; (2) whether these were submitted to a committee of experts, of which Sir F. Abel was a member, and were rejected; (3) whether subsequently Sir F. Abel and Professor Dewar took out a patent for cordite, the manufacture of which for public reasons had been kept a secret; (4) whether, nevertheless, Sir F. Abel assigned the patent for use abroad to a foreign manufacturer, and whether this was done with the previous consent of the War Office; (5) whether, in conjunction with Dr. Anderson, now director of ordnance factories, he patented machinery for the manufacture of cordite; (6) whether that machinery is now in use at the Government factory; (7) whether the orders for the machinery were given to Messrs. Easton, Anderson, and Co.; and (8) what, at the time the order for such machinery was given or repeated, was the connection of the present director of ordnance factories with that firm.

Mr. Campbell-Bannerman: In reply to paragraphs 1 and 2 of the hon. member's question, I have to say that in 1888, in the early stages of the inquiry regarding smokeless powder, one inventor was invited to submit samples. Several other explosives had previously been submitted to the Department, and others were sent in from time to time without special invitation. In 1890 several inventors whose explosives were then before the Department were invited to submit samples for competitive trial with others, and with cordite and Walthamite, for use in the "303" rifle. These trials were carried out by the Explosives Committee, of which Sir F. Abel was president. The results having been submitted to and carefully considered by the military authorities, it was decided by them that cordite was distinctly superior to the other explosives, and its adoption was recommended to the Secretary of State. The answer to question 3 is that it was not subsequently to these trials of 1890 that the Abel-Dewar patents were taken out. They were taken out in 1889, and the British and colonial patents were transferred to the Secretary of State. It is not the case that the manufacture of cordite is kept a secret. Certain firms who might be able to tender for its supply were, in fact, invited to inspect the process at Waltham, but as the question whether this manufacture is or is not an infringement of certain previous patents is now the subject of a suit in Court, it was thought right by the holders of those patents, as well as by the War Office, that the works should be for the present closed to the public. In regard to paragraph 4, Sir F. Abel and Professor Dewar did take out patents abroad, and assigned them to a foreign manufacturer. The previous consent of the War Office was not asked for, but the fact was reported to the Department. As regards the fifth paragraph, the answer is yes, in conjunction also with Professor Dewar. The patent was applied for before Dr. Anderson joined the public service. On its completion the patent was assigned to the Secretary of State, Dr. Anderson having been, in the meantime, appointed director of ordnance factories. The answer to paragraph 6 is yes. As to the last paragraph also the answer is in the affirmative. Some of these orders were given before Dr. Anderson joined the Department, the machinery being largely of his invention, and the firm having had large and, to the War Office, most satisfactory experience in supplying machinery for the public service. Since that time about one-third of the machinery has been supplied by Messrs. Easton and Anderson and two-thirds by the Royal Arsenal. Since Dr. Anderson joined the service he has had no connection with the firm of Easton and Anderson.

In reply to a further question,

Mr. Campbell-Bannerman said that patents for useful inventions were taken out by persons connected with the Department to prevent their falling into other people's hands, but the patents were immediately assigned to the Secretary for War, so that the patentees got no profit.

Sir C. Dilke asked what advantage there was in this procedure, seeing that the invention was patented in foreign countries.

The question was not answered.

Mr. Hanbury intimated that he would call attention to the whole subject on the Estimates.

On Monday, in reply to Mr. Hanbury, Mr. Campbell-Bannerman said that the instruction to the Explosives Committee appointed in July, 1888, were general and were as follows:—"The Committee is appointed for the purpose of considering questions relating to the new explosive agents or to new applications to other improvements in the production and application of known explosive agents which will be referred to the Committee by order of the Commander-in-Chief for consideration or investigation and report." The Committee was appointed for three years, and during that period all explosives sub-

mitted to the department, and all questions which arose relating to explosives were from time to time referred to the Committee for consideration and report. It was quite understood that the Committee were to endeavour by every means in their power to develop the science of explosives, and to place the service in possession of those best adapted to meet its various requirements. The object of the department was not to decide on the merits of rival inventions, but to obtain the best material for the public service. For this purpose the Committee were naturally entitled to suggest improvements and modifications, and no such intimation to that effect was required. At the time the Committee was formed eight explosives were under consideration, and the investigations with regard to these were taken up by the Committee. Between that date and the date of the first application for patents by Messrs. Abel and Dewar eight others came under consideration. The department had no particulars in regard to taking out of the foreign patents. In answer to the question: "Were the inventors who submitted samples for competitive trial with each other, and with cordite a year later, in 1890, officially informed that two members of the Committee who were to judge upon them had previously patented cordite in their own names both at home and in foreign countries?" he had to say that the actual specification for the cordite patent was almost simultaneous with the arrangements for the competition, and the fact of a patent having been applied for was well known to all concerned. It was not accurate to speak of the Committee as judging the invention. The Committee carried out the trial and reported the results of that trial, but they were not judges. So far as its ingredients were concerned, cordite was not kept a secret. The only specification which was for the time sealed, related to the form in which the material was to be produced. This was sealed from June 23rd, 1890, to May 28th, 1892, but as a matter of fact the process of manufacture was disclosed in public in the specification for machinery published in July, 1890, a month after the specification had been sealed. Sir F. Abel informed the Director of Artillery on March 28th, 1891, that he and Professor Dewar had transferred their foreign patents, but as he (Mr. Campbell-Bannerman) had said, the department were not concerned as to these patents.

Legal Intelligence.

AN OFFENSIVE CHEMICAL WORKS.

HEATH TOWN LOCAL BOARD v. HILL.

AT the Wolverhampton County Petty Sessions on Monday, William Hill and William Hill (the younger), chemical manufacturers, Deans-road, Wednesfield, were sued at the instance of the Heath Town Local Board for establishing an offensive trade within the Board district for the production of charcoal, acetate of lime, wood naphtha, and wood tar, without the consent of the Local Authority; further, for carrying on the business without the consent of the Urban Authority; and also for carrying on the business so as to cause a nuisance. Mr. Lawrence (instructed by Mr. Stirke) appeared to prosecute, and Mr. Vachell (instructed by Mr. T. Gatis) defended.—Mr. Lawrence, in opening the case, said that Messrs. Hill and Son formerly carried on business as oil merchants, but at the beginning of the year they started their present business of manufacturing charcoal, acetate of lime, wood naphtha, and wood tar. They were told that it would be necessary to obtain a licence from the Local Board, and within a few days after opening the works complaints were made as to the effluvia which proceeded from them. Mr. Green, the medical officer to the Local Board, after visiting the works, made various friendly suggestions with regard to abating the nuisance arising from the offensive odour given off from the works, but they were not adopted, and a number of the inhabitants in the neighbourhood suffered very much. Some lost their lodgers; others had to get up in the middle of the night and go away; while in some cases the wives slept in friends' houses, and other residents had to sit in their gardens.—Dr. Green, the medical officer to the Heath Town Board, spoke of the sickly character of the odour emitted from the works, and said it was calculated to injuriously affect the people living in the district. Mr. Lask, inspector of nuisances, said that soon after the works were opened people complained of the nuisance, owing to the offensive smell arising from them. Mr. A. Hands, surgeon, Heath Town, and Mr. James Wells, surgeon, Wolverhampton, also spoke to complaints made as to the smells arising from the works. A number of residents in the neighbourhood were also called to show that they had suffered in consequence of the evil odours given off from the works. For the defence Mr. Vachell contended that there was no nuisance in the sense intended by the Act of Parliament, and further that if there was a nuisance the best practicable means had been adopted by the defendants to put an end to it. There were a number of chemical manufactories near to Heath Town, and he held that the fumes from the defendants' works were, instead of injuring people, calculated to improve their appetites. The works were built on the most modern

principles, and there were similar works in Sun-street, Wolverhampton. Mr. E. W. T. Jones, borough analyst for Wolverhampton, said he had visited the works on two occasions, but found nothing a nuisance. He could not suggest a better method of carrying on the works, as there were no fumes to cause irritation of the throat. The works, however, could not be carried on without giving off a smell. Mr. C. A. Newnham, surgeon, Wolverhampton, said the refuse tip of the Local Board, which was in the neighbourhood, was capable of giving off a smell sufficient to produce the same complaint as that of the witnesses. He did not complain of the fumes from the defendants' works injurious to health. After hearing, it was agreed that the case should be adjourned for a month to enable the defendants to adopt a more satisfactory carrying on the works. It was stated that Mr. Hill, senior, member of the Local Board, is not connected with the works.

THE GAS SUPPLY OF LONDON AND LEEDS.

LONDON.

THE quality of the gas supplied to the City of London for the week ending August 12th, 1893, was, on the whole, good. According to the report of Mr. W. J. Dibdin, chemist and superintendent gas meter, to the London County Council, the tests made at the various stations showed two deficiencies in illuminating power against the Gas Light and Coke Co. The following have been prepared from the report, and show the average composition of the gas calculated on the mean test:—

Company.	No. of districts tested.	Illuminating power (in stand. sperm candles).	Sulphur. Grains in 100 cb. ft.	Ammonia. Grains in 100 cb. ft.
		Mean average.	Mean average.	Mean average.
Gas Light and Coke Co.	14	16'47	9'59	0'43
South Metropolitan Gas Co.	6	16'78	10'06	0'78
Commercial Gas Co.	2	16'45	7'70	1'10

The standard gas supplied by these companies should have an illuminating power of 16 sperm candles, and contain not more than 10 grains of sulphur and 4 grains of ammonia per 100 cubic feet of gas, with a pressure of one inch between midnight and sunrise.

LEEDS.

According to the report of Mr. T. Fairley, F.I.C., gas meter, for Leeds, the proportion of total sulphur contained in the gas during the month ended August 10th, 1893, has averaged 16'7 grains per 100 cubic feet. The following are the results of tests made at various places in the city:

Place.	Date when Tests were made.		Total Sulphur.	Ammonia.	Carbonic Weight.
	July, 1893.	Aug. 1893.			
Meadow Lane....	22, 25, 26, 27.	3, 8.	14'36	23'58	48'90
New Wortley	20, 23.	5, 10.	20'39	1'20	48'90
York Street	19, 26.	1, 9.	13'80	1'41	32'60
Average at Works	..	..	16'74	11'86	48'90
Average at East Parade	..	..	14'74	6'47	57'05

During the month the average illuminating power of the gas tested at 16, East Parade, the tests being calculated to a uniform consumption of 5 feet per hour, and corrected for variations in temperature and pressure to a temperature of 60° Fahr. and a barometric pressure of 30 inches, has been in standard candles (burning 120 grains of sperm per hour):—Standard argand, 24 holes, 18'9; standard Bunsen, 19'6; Sugg's illuminating power meter, 19.

Reports of Companies.

MESSRS. BRUNNER, MOND AND COMPANY.
HALF-YEARLY MEETING.

THE half-yearly meeting of this company was held at the Association Rooms, Cook-street, Liverpool, on Monday, August 21st, 1893, Mr. J. T. Brunner, M.P., presiding. After the secretary had read the notice convening the meeting, the Chairman moved the adoption of the director's report and statement of accounts, which showed a balance to the credit of profit and loss account on the works

ended on the 30th June, 1893, of £251,219. 7s. 10d. which, amount of £172,754. 13s. 10d. brought forward from the half-year, made a total of £423,974. 1s. 8d. Mr. Brunner said that the dividend on the preference capital be at the rate of 100 per cent. per annum, and the dividend on the ordinary capital be at the rate of 100 per cent. per annum free of income-tax, for the half-year ended 30th June, 1893. He might add this was their twenty-first annual meeting, and he thought on an occasion like that, which was a silver wedding, a dividend of the character indicated was appropriate to the circumstances (hear, hear). The shareholders were informed by the auditors that they had examined the accounts, and he thought it was right the shareholders should know that they had been done, for it was a matter of great importance, and he thought they would be all satisfied with it (hear, hear).

Mr. Coghill seconded the motion, which was adopted. Mr. W. H. Anderson moved that the directors, other than the managing directors, be paid £500. for their services during the half-year. The work had been very satisfactory indeed.

Mr. Bain seconded the resolution, which was carried. The motion of Mr. Isherwood, seconded by Mr. J. G. Jones, was ordered to be paid to the auditors for the half-year, it being at their work, with the growth of the company, had greatly increased.

The chairman said that brought their proceedings to a close, and he hoped that at the next meeting they would be as well satisfied as they were that day (hear, hear).

Mr. Darsie, in moving a vote of thanks to the chairman, said there was no need to say anything on account of the great pleasure afforded them when they received their accounts.

Mr. Brunner returned thanks on behalf of himself and his colleagues. The same faces around him half-year after half-year made these proceedings very pleasant indeed to him.

The proceedings then terminated.

Correspondence.

We do not hold ourselves responsible for the opinions expressed by our correspondents.

ANSWERS TO CORRESPONDENTS.

They will be sent.

Twelve shillings and sixpence post free (52 numbers).

Thanks for notification.

V. M.—The article is a very long one. We should suggest writing to the editor who very likely will have a reprint to spare, or else write to C. G. Cresswell, 9, Bridge-street, Westminster, for the back number.

Yes, reference was made to the matter not long since. The final decision was given in No. 316 of the journal, and the earlier part of the case in No. 315. The licence cannot be levied.

Paris.—We are sorry we have not a copy in our possession to place at your disposal, but think you could obtain one by applying to the company at G. 11, Exchange Buildings, Liverpool.

—The alteration has been duly made.

(Ceylon).—Both are to hand, and we trust you have received the exchange.

NOTICES.

LONDON AGENTS

Booksellers and Newsagents may now obtain supplies of

THE CHEMICAL TRADE JOURNAL

From

MR. JOHN HEYWOOD,

2, Amen Corner,

Paternoster Row, E.C.,

usual trade terms.

FOREIGN REMITTANCES.

—We regret the inconvenience created by the various ways in which remittances are made, and we respectfully beg to inform our subscribers that a *Crossed MONEY ORDER* is the most satisfactory method of remitting, both for them and ourselves. In the case of a *Crossed MONEY ORDER*, a letter advising us of same should always be sent, as, owing to post-office formalities, much delay in tracing and crediting foreign remittances is inevitably entailed in this country.

Trade Notes.

FATAL EXPLOSION IN A FIREWORKS FACTORY.—A serious explosion occurred last Saturday afternoon at Messrs. Brock's fireworks factory at Croydon in a drying shed. One of the men employed was very severely injured, and died four hours afterwards in Croydon hospital.

DEATH FROM CHOLERA IN LONDON.—At an inquest held last Monday, on the body of a boy, ten years of age, a medical witness said death was due to collapse from cholera of some kind. The inquest was adjourned to admit of analytical and bacteriological examination of the stomach of the deceased.

A CARBONIZING COMPOSITION.—A compound for carbonizing metals upon the cementation principle may be formed by making a mixture of lime, soda ash, sal ammoniac, tungstic acid, and bone carbon. This compound is especially suited for the treatment of low grades of iron.

MESSRS. BRAMWELL AND FERN.—We learn that this firm will carry on the business formerly prosecuted under the title of Messrs. Bagnall and Bramwell, of 18, St. Ann-street, Manchester, and 3, Fenchurch-street, London, Mr. Bramwell having taken into partnership Mr. George Fern who has assisted in carrying on the business since the death of the late Mr. Bagnall.

EXPLOSIVES.—A patent for the manufacture of explosives of great power proposes to prepare such compounds by mixing oxygen carrying bodies such as chromic or nitric acids with cellulose in conjunction with either naphthaline, camphor, naphthol or similar compounds, and also with the heavy oils from the distillation of coal. The former compounds being combined to give powerful explosive action, and the latter to serve as a protection to the first named bodies. A water-proof varnish may also be added during manufacture.

OBTAINING ALKALINE CARBONATES BY ELECTROLYSIS.—In order to obtain alkaline carbonates and bicarbonates from solutions of alkaline chlorides by electrolysis, it has been proposed to add gelatinous alumina to a solution of an alkaline chloride. Chlorine is evolved from the positive, and caustic soda from the negative pole, the caustic combining with the alumina to form an alkaline aluminate. Carbonic acid gas is then passed into the aluminate decomposing the same, forming alkaline carbonate or bicarbonate, and precipitating the alumina.

THE YORKSHIRE COLLEGE.—The vacancy in the staff of county lecturers of the Agricultural Department of this college has been filled up by the appointment of Mr. Charles F. Archibald. Mr. Archibald was educated at Harrow, and received his agricultural training at the College of Agriculture, Downton, afterwards spending some time with firms of land agents at Kendal and Preston. In 1890 he was appointed assistant lecturer in agricultural chemistry in the University College of North Wales, Bangor. He is a life member of the Royal Agricultural Society, having taken first-class certificate and first prize in the senior examination.

THE BOLTON SEWAGE SCHEME.—Major-General Crozier, one of the inspectors of the Local Government Board, conducted an inquiry at Bolton on Tuesday into the application of the Corporation to secure power to borrow £40,000. for electric lighting works and £5,000. for works of sewage. There was no opposition.—The Town Clerk explained in regard to the sewage question that the application had arisen through the action of the Corporation in deciding to carry out certain alterations in the closet accommodation of the borough. There were a great many old sewers in the centre of the borough which were on what was known as the rubble drain principle. These were not watertight and consequently unfit to receive or carry water closet matter. These sewers were constructed before the incorporation of the borough in 1840 and in the days of the old trustees, and it was proposed to replace them with sewers of brick and pipe construction. The streets affected by these alterations numbered about 70.

JAPANESE COMPETITION IN COAL.—The rapid development of the Japanese coalfields is an event of the utmost importance to the English coal trade. Not only are these enterprising Orientals supplying the greater part of their house requirements for fuel, but they are exporting coal on a large scale to China, and contracts are being entered into for other eastern markets. The Japanese are mining on approved modern methods, and English capital is largely invested. It is significant of the future prospects of this Japanese industry that coal is being shipped to the eastern ports of China, also to the islands of the Indian Archipelago at less than half the rates charged for Welsh and North of England coal. It is now anticipated that Japanese fuel will be extensively used in preference to European by the steamers and other trading vessels navigating Asiatic waters. It is understood that some of the French vessels of war engaged in the French Siamese blockade availed themselves of Japanese coaling stations, and those depots served a similarly useful purpose during the French naval operations against China a couple of years ago.

SINGULAR EXPLOSION AT DEWSBURY.—A fire occurred this week at Dewsbury at the works of Mr. J. R. Midwood, flock manufacturer, and was accompanied, or rather preceded, by an explosion of a somewhat remarkable character. Woollen flocks are made out of rags, and in the process of grinding much dust is produced, most of it of a fibrous character, the debris of the torn-up material. For the sake of the health of the workers, and for the production of a manure much used in the hop gardens of Kent, this dust is blown into a large chamber and is periodically removed. When the rag machines are in operation the room is filled with particles of dust, and on some hard substance getting into the revolving teeth of one of the machines flame was caused, and this was blown amongst the dust. The result was an explosion which shook the entire building and caused great alarm in the neighbourhood. An operative named Thomas Blacker was severely burnt by flame resulting from the explosion, and had to be conveyed to the Dewsbury and District Infirmary. The damage done by the fire amounts to about £500.

THE HAZEL GROVE SEWAGE SCHEME.—The Hazel Grove Scheme was again considered last Monday, at the monthly meeting of the Rural Sanitary Authority governing that district. It was stated that a letter had been received from the Local Government Board with reference to the application to borrow a sum of £3,000. for extension of sewage works in connection with the Hazel Grove system, and stating that it would be contrary to the practice of the Board to sanction a loan for sewers in a case where the sewage was not purified on an adequate area of land. It was remarked that the inspector of the Local Government Board considered that the present filtration area was not sufficient. That opinion was, however, generally dissented from by members of the Authority, who were backed up by a report of a sample taken at the sewage works, which was analysed by Sir Henry Roscoe, who described it as "satisfactory, oxidisable organic matter 0.21, clear, bright effluent; on standing small amount of suspended matter found." It was decided that a copy of Sir Henry Roscoe's letter should be forwarded to the Local Government Board, and that a fresh application for the loan should be made.

THE BURNLEY SEWAGE WORKS.—Last Wednesday the Burnley Town Council inspected the extended and perfected sewage system of Burnley, which is regarded as one of the best in the country. The borough surveyor (Mr. F. S. Button) presented a description of the works, from which it appears that the area of the borough is 4,015 acres, divided into two drainage areas. The larger one, the Duckpits, contains 2,800 acres, and the smaller one 1,215 acres. The population of the borough, which has doubled every twenty years, is now estimated at 92,000. Since 1871 the sewage question had received a good deal of attention. In 1876 the Corporation entered into an agreement with Scott's Sewage Company, who commenced the treatment of the sewage and the making of cement in 1878. In 1887 the Highways and Sewage Committee was formed, and the duties of the sewage management were taken over by that committee. At the Duckpits and Wood End works the quantity of sewage discharged is 1,848,000 gallons per day. There are twelve precipitation tanks, with effluent channels carrying clarified sewage to filtration areas. The adoption of filter presses for the treatment of sewage sludge has proved a vast improvement. The death-rate of the town has been gradually decreased from an average of 25.9 per 1,000 in 1873-7, to 21.8 per 1,000 in 1888-92, showing the influence of sanitary improvements on the mortality. A rate of 7d. in the pound is the maximum cost for sewage disposal purposes.

LIGHTING AN ENGINEERING WORKS BY ELECTRICITY.—The new works of Messrs. Harper, Limited, were lighted up by electricity for the first time last week. The effect was very fine, there being no less than 55 arc lamps, aggregating 75,000 candle power and absorbing three-fourths of the available power of the dynamo, which has a capacity of 100 amperes and a voltage of 260 when run at 725 revolutions per minute. The dynamo is driven by a large Tangye gas-engine, which assists a duplicate engine to drive the main shafting for the whole works. The gas required to drive the dynamo when the whole place is lighted up is only 550 feet per hour. This economy seems incredible, but is nevertheless a fact. It is probably due to the particular arrangement of installation and the careful selection of the apparatus and lamps, all of which are of the most modern design and manufacture. This trifling amount of gas would only light up a corner of the works were it put through burners in the usual way, instead of being converted into electricity through the engine and dynamo. The installation is a great success, and is the largest of the kind in Scotland, the Glasgow Central Station having little more than half the number of lamps. Notwithstanding its extent, it has been arranged and erected with much economy, due in great part to the skill of Mr. F. Hoppert, electrical engineer from London, who fitted it up. The offices are also nicely lighted up by 35 incandescent lamps, so that no gas is used throughout except for driving engines, of which there are three altogether, to the total exclusion of steam.

Market Reports.

TAR AND AMMONIA PRODUCTS.

Benzols are reported to be a $\frac{1}{2}$ d. firmer, but as a matter of fact firmness is due to an arrangement between the principal sellers, not produced by actual demand. Carbolic acid (crude) and anthracene remain without any change worth reporting, but pitch for next is certainly looking brighter.

There is very little business passing in the sulphate of ammonia market, and necessarily at high rates. The facts are simply this: Sulphate is exceptionally scarce, and those who have contracts to fill and have not bought, or who cannot get delivery, will have to pay almost any price the few sellers who have any stock choose to ask. It can hardly be gainsaid that the prices asked are now exceedingly high, and September delivery looks like being quite as high as August. Prices to-day may be quoted as £15. all round.

REPORT ON MANURE MATERIAL.

Throughout the week the market has been quiet, but prices for phosphatic and nitrogenous material have been well maintained.

Florida, 75/88%, mineral phosphate is firmly held for 8½d. cargoes c.i.f. to U.K., and 8½d. is asked for most Continental cargoes. For Peace River rock 7d. per unit is the quotation, and for Carolina River rock 6½d. per unit, c.i.f. to United Kingdom. Buyers of cargoes of River Plate bones at £4. 12s. 6d. to United Kingdom ports, but no sellers at the price. The quotation for River Plate bone ash remains £3. 10s., on 70% nett, Hamburg. £4. 10s. required for crushed Kurrahee bones, autumn shipment. Quay Liverpool or Hull, and £4. 15s. for Bombay bone meal, ex Liverpool, London, Hull, or Glasgow. Sales of clean, dry, merchantable cattle bones have been made at £4. 5s., ex quay Liverpool, and more money would be paid for clean, hard charring. Nitrate of soda is unchanged. Ordinary quality on spot is selling at 9s. 3d., and refined at 9s. 4½d. per cwt. Due cargoes are working in July-August shipments 9s. 1½d. to 9s. 3d., and September-November 9s. 3d. to 9s. 4½d., according to size and test.

There is good enquiry for miscellaneous nitrogenous material, but nothing special offering, and there is no business to report.

MISCELLANEOUS CHEMICAL MARKET.

Business during the week has been rather quiet, due to a general tendency, no doubt, to the fact that many users of chemicals are on time owing to the difficulty in getting supplies of fuel. Bleaching powder strong, and has advanced 10s. per ton and now stands at £8. 10s., rails, for spot delivery. Caustic soda has followed with same increase and is selling readily. Present prices are: f.o.b. 77%, £11. 10s.; f.o.b. Liverpool, 74% £11., 70% £10., 60% cream 60% £8. 15s., 10 ton lots and upwards. Soda ash seems inclined to decline than advance. Present values are all in favour of buyers. Saltcake still depressed and difficult to move. Chloride of potash steady at 8d. Sulphate of copper dull and with little enquiry we quote £15. 10s. f.o.b. Lead salts quiet. Foreign white arsenic £25. 15s. c.i.f. Nitrate £19. Acetate of soda firmer. Ammonium salts continue steady and in good demand. Grey muriate sells at £22. to £23., and carbonate at 3½d. Nitrate of soda moves well at 9s. 3d. to 9s. 6d. for spot parcels. White powdered arsenic continues to hold a strong position and is selling readily at £13. 10s. to £13. 15s. Garston. Sulphate of manganese not over plentiful at £17. 10s. Potash, caustic and carbonate steady at former prices. Oxalic acid meets with rather more enquiry, but is still quoted at a discount. Yellow prussiate of potash slow of sale at £7. 10s. Sulphocyanides flat. We quote ammonium 7d., barium 5d. Cyanides show signs of improvement and are in better request.

THE METAL MARKETS.

LONDON, WEDNESDAY.—Pig iron easier. Scotch was closed at 42s. 6d. cash, Middlesbrough 35s. 3½d. cash, and here 44s. 11d. Copper quiet: Chili bars, G.O.B.'s and G.M.B.'s at £41. 1s. 3d. to £41. 7s. 6d. cash, and £41. 11s. 3d. to £41. 18s. three months. Tin, dull: Straits closed at £76. 15s. to £77. cash, and £77. to £77. 10s. three months; Australian, £78.

English ingots, £83. Lead, quiet; Spanish, £9. 17s. 6d. to £10.; English, £10. to £10. 2s. 6d. Silesian spelter: Ordinary, £17. 2s. 6d. to £17. 5s. Nickel, 1s. 8d. Antimony, £37. 10s. Quicksilver: First hands and second hands, £6. 5s. Copper shares, quiet: Cape, $\frac{3}{4}$ to $1\frac{1}{4}$. Copiapo, $1\frac{1}{4}$ to $1\frac{3}{4}$. Libiola, $2\frac{1}{4}$ to 3. Mason and Barry, $1\frac{3}{4}$ to $1\frac{5}{8}$. Rio Tinto, $12\frac{3}{4}$ to $12\frac{1}{2}$; Tharsis, $4\frac{1}{2}$ to $4\frac{1}{4}$; Namaqua, $\frac{3}{4}$ to $\frac{3}{8}$.

WOLVERHAMPTON, WEDNESDAY.—Market disorganised, awaiting the decision of the Colliers' Conference. Buying and selling are alike suspended. Manufactured iron prices kept firm by the high price of pigs and the increased value of coal, also by the lessened make through the hot weather. Sheets, singles, £7; doubles, £7. 5s. An advance is being attempted in galvanised sheets, which are quoted £11. to £11. 10s. Some bars, hoops, strips, and rods are 5s. higher on the week. Derbyshire and Leicestershire pigs nominal at 45s. to 47s. 6d.; Staffordshire common, 37s. 6d. to 40s.

GLASGOW, WEDNESDAY.—Market easier with fair business. Scotch done at 42s. $6\frac{1}{2}$ d. and 42s. 6d. 42s. $7\frac{1}{2}$ d., and 42s. $6\frac{1}{2}$ d. cash, also at 42s. 8d. and 42s. 9d. one month; closing with buyers at 42s. 6d. cash, sellers ask 42s. 7d. Cleveland done at 35s. 3d. and 35s. 4d. cash, also at 35s. 5d. and 35s. 6d. one month; closing with buyers at 35s. $3\frac{1}{2}$ d. cash; sellers ask 35s. $4\frac{1}{2}$ d. Cumberland hematite done at 45s. cash, also at 45s. 3d. one month; closing with buyers at 44s. 1d. cash; sellers ask 45s. 1d. Middlesbrough hematite closes with buyers at 43s. cash; sellers ask 43s. 6d.

LIVERPOOL OIL AND COLOUR MARKET.

WEDNESDAY.

OILS.—Considerable sales of Lagos have been made during the week at £24. 10s. per ton, and soft oils have been moving more freely. To-day the market is steady, but business doing is chiefly for forward. Olive is steady at £34. to £41, being in moderate request. Linseed is steady, though easier than it was in the early part of the week, Liverpool makes being worth to-day 22s. 6d. to 23s. per cwt. in export casks. Cottonseed is quiet and easier, Liverpool refined being quoted 21s. 6d. to 23s. per cwt. Castor oil is rather quiet, with good seconds Calcutta at $2\frac{3}{4}$ d., and first pressure French at $2\frac{1}{2}$ d. to $2\frac{3}{8}$ d. per lb. Tallow is steady and in fair demand, with North American ranging from 25s. to 27s. 3d. per cwt. Resin, common, continues at 3s. 9d. per cwt. with moderate demand; fine is rather easier at 8s. 11d. to 11s. 9d. per cwt. Spirits of turpentine are a turn better at 21s. 6d., at which price holders are firm. Petroleum is without appreciable alteration, with American at $4\frac{3}{4}$ d. to $5\frac{1}{2}$ d., according to quality, and Russian refined 4d. per gallon.

COLOURS: A brisker business doing, but prices unchanged. Ochres: Oxfordshire, common, £10., medium, £12., best, £15.; Derbyshire, common, 40s.; medium, 50s., best, 60s.; Welsh, best, 70s., seconds, 50s., and common, 18s.; Irish, Devonshire, 40s. to 45s.; French, J.C., 55s. to 60s.; M.C., 65s. to 67s. 6d. Umber: Turkish quiet; Devonshire, 50s. to 55s. White lead, red lead, and oxide of zinc unchanged. Venetian red, £6. 10s. to £10. Cobalt: Prepared oxide, 9s. 9d.; black, 9s.; blue, 6s. Zaffres: No. 1, 3s. 6d.; No. 2, 2s. 6d. Oxide of iron: Common, £6.; medium, £10.; finest, £20. Zinc oxide, £23. to £25.

WEST OF SCOTLAND CHEMICALS.

GLASGOW, TUESDAY.

One chief feature is the continued vigour of the sulphate of ammonia market. Up to the end of the week buyers were rather anxious about providing for immediate needs, and some were prepared to pay £14. 15s., while not very sure that it could be bought even for that comparatively high figure. Indeed the chief producers, although well pleased with this price, are not in a position to sell for prompt, having not a ton of the article in ready stock. The forward market is likewise very healthy, £13. 7s. 6d. to £13. 10s. being readily got for several months on.

Another feature is the rise in various chemicals, decided on by the Union in consequence of the unsettled character of the fuel market. Bleaching powder and caustic soda are the most important of those raised, but chlorate of potash has also mounted, at least so far as near deliveries are concerned.

The makers of mineral oil products, including solid paraffin, etc., are affected by the coal labour troubles, but they are not at liberty to adjust their account by simply advancing the prices of their products. Foreign competition forbids this, and therefore market values in this section are unchanged.

Chief prices current are:—Soda crystals £2. 15s. nett, Tyne; soda ash £5. 5s. nett, Tyne; refined alkali £6. 10s. nett, Tyne; alum

in lump £5. 10s. nett, Glasgow; caustic soda, white, 74°, £11., 70/72° £9. 10s., 60/62° £8. 10s., and cream 60/62° £8. 5s., all nett Liverpool; bleaching powder £8. 10s. nett Tyne; saltcake 24s; borax, English refined, £30., and boracic acid, £37. 10s. nett, Glasgow; bicarbonate of soda, 5-cwt. casks, £6. 10s., and 1 cwt. casks £6. 15s. less $2\frac{1}{2}$ %, Liverpool; bichromate of potash, $4\frac{1}{2}$ d. nett, for Scotch and English deliveries (for export, $4\frac{1}{4}$ d. nett f.o.b. Glasgow); bichromate of soda, $3\frac{3}{4}$ d. nett, for Scotch and English deliveries (for export, $3\frac{1}{2}$ d. nett, f.o.b. Glasgow); chlorate of potash $8\frac{1}{4}$ d. less 5% Liverpool; nitrate of soda, 9s. 6d.; sulphate of ammonia, £14. 15s., prompt, f.o.b. Leith; sal ammoniac, first and second white, £37 and £35. less $2\frac{1}{2}$ % any port; sulphate of copper, £15. 5s., less 5% Liverpool; paraffin scale, hard and soft, $1\frac{3}{4}$ d. per lb.; paraffin wax 120° semi-refined $2\frac{3}{4}$ d.; paraffin spirit (naphtha) $3\frac{3}{4}$ d. a gallon; paraffin oil, burning, standard No. 1 grade, 5d. per gallon at works, for Scotch buyers (English sales $\frac{1}{2}$ d. to 1d. lower); ditto (lubricating) 865° £3. 15s. to £4., 885° £4. to £5. 10s., and 890/895° £4. 15s. to £6. 5s. Week's imports of raw sugar at Greenock were 4,800 bags.

THE LIVERPOOL MINERAL MARKET.

The market is somewhat quieter this week, but remains very firm. Manganese: Arrivals slow; good demand for spot at full prices. Borate, 7d. per lb.; sulphate, £21. 10s.; oxalate, 1s. 6d. per lb.; chloride, £15., carbonate, £12. 10s., steady. Magnesite (raw lump) good demand; raw ground, £6. 10s., and calcined £12. 10s. Bauxite (Irish Hill brand): The demand for home trade is very brisk at full figures; lump 20s., seconds 16s., thirds 12s. French chalk: A good business doing at full figures. Barytes: Carbonate is still scarce; nuts, 72s. 6d. to 85s.; finest white sulphate is in demand. "Angel White," No. 1, 70s.; No. 2, 60s. to 65s.; No. 3, 45s. Pumicestone quiet. Iron ore flat, Bilbao, Irish, and Cumberland slow. Santander and manganiferous more enquiries. Emery-stone firm; No. 1 lump, £5. 10s. to £6.; smalls, £5. to £5. 10s. Fullers' earth: Best lump, 55s.; fine impalpable ground, £7.; "Emerald" ground, 80s. Scheelite, wolfram, tungstate of soda, and tungsten metal easier. Chrome ore in good demand, but more offering. Antimony ore easier, at £11. 10s., and metal £43. to £45. Asbestos firm. Potters' lead ore, smalls, £10. 10s. to £11. Calamine strontia sulphate (celestine) quiet. Limespar steady, especially for English manufactured; old G.G.B. brand in demand at 50s. (ground). Felspar quiet. Fluorspar: Best quality scarce. Ferro-manganese slow. Plumbago: Spanish, £5.; best Ceylon lump at last quotations; Italian and Bohemian, £4. to £12. per ton; "Founders," £5. to £6.; Blackwell's "Mineraline," £10. French sand, 20s. to 22s. 6d. Ground mica, £45. to £50. China clay steady, common, 18s. 6d.; good medium, 22s. 6d. to 25s.; best, 30s. to 35s. (at Runcorn). Bog ore (oxide of iron): finest quality 25s. to 30s.

HULL PAINT, OIL, AND COLOUR REPORT.

TUESDAY.

OILS.—Business continues very depressed, no doubt contributed to some extent by the atmosphere amongst other things. The coal strike is hitting all round and few places are suffering more severely; the general tonnage outward being less by 11,000 tons, and inward by 4,000 tons, than same week a year ago. The exports, however, of oils are not seriously affected, still an improvement is desirable in linseed oil, the export being 1,227 cwt. against 1,064 cwt. a year ago, and refined cotton oil being 4,250 cwt. against 4,939 cwt. in same time. Linseed oil on the spot has experienced a further advance of about 10s. per ton, and closes steady at 21s. 9d., naked. August delivery any time being worth 21s. 6d. Last four months realised up to 19s. 6d. at which there are further sellers. Refined cotton oil has declined about 10s. per ton, the closing quotation spot or month being 19s. 9d. naked. September-October offers at 19s. 6d., and November-April 17s. 9d., naked. Refined rape, in casks, 25s; niger oil, nominal in casks, 21s. 6d., per cwt.; olive oil, from £35. to £40. per tun. The fish oil trade is very dull, very little demand being experienced except for export; prices being: coast cod oil, £17. 10s. to £20. per ton; herring oil, £16. 10s. per ton; cod oil in fair request, £15. to £17. per ton; lubricating grease (equal to Stauffer's) from £16.; pine oil, £7. per ton; anti-friction grease, from £5. 15s. per ton upwards; Brown wool grease, £8. per ton; petroleum jellies, from 26s. per cwt.

CAKES.—Linseed and cotton cakes have experienced very little alteration, and with harvest in full swing very little demand is experienced, prices being:—linseed cakes, steady, at £8. 12s. 6d. for 95% pure; ordinary, £7. 5s. to £7. 10s.; Americans, £7. 12s. 6d., and £8. 10s., Russians. Cotton cakes, unchanged, at £5. 7s. 6d., spot. They cannot be made below £5. 10s.; a year ago they were

£5. 17s. 6d. November-March, £4. 15s. to £4. 17s. 6d.; a year ago they were selling at £4. 12s. 6d., dropping down to £4. 8s. 9d.

PAINTS.—This trade is experiencing a slackness, and exports for painter's colours and chemicals each show a falling off for the week compared with the same week a year ago. White lead, firm at old prices; venetian red, dry, £6 to £10. per ton; French ochre, 60s. per ton; lime blue, from 16s. per cwt.; oxide of iron, dry, £9. to £18 per ton; enamels, from 4s. 9d. a dozen; ready mixed paints, in various sized tins, from 28s. per cwt. Oak varnish, from 6s. per gallon.

TYNE CHEMICAL REPORT.

TUESDAY.

Chemicals are firm and recently there has been several advances in prices, in consequence principally of the extreme heat largely reducing the production. Soda crystals are raised to £2. 15s. to £2. 17s. 6d. Caustic soda is now £11. 7s. 6d. to £11. 10s. for highest strength. Bleach £8. 15s. per ton. Sulphur unaltered.

Bleaching powder, softs, £8. 15s. per ton nett; hards, £9. per ton; caustic soda, 76/77%, £11. 10s. per ton, 70%, £10. per ton; recovered sulphur, 2 cwt. bags, £4. 5s. per ton; soda ash, 48%, £4. per ton, 52%, £4. 7s. 6d. per ton, 56%, £4. 15s. per ton; alkali, 36%, £3. 15s. per ton; white alkali, 48%, £4. 15s. per ton, 50%, £5. per ton, 52%, £5. 5s. per ton; hyposulphite of soda, in 5-7 cwt. casks, £7. per ton, ditto, in 1 cwt. kegs, £7. 15s. per ton; silicate of soda, 75% Tw., £2. 15s. per ton, 100% Tw., £3. 10s. per ton, 140% Tw., £3. 17s. 6d. per ton; soda crystals, in casks, £2. 17s. 6d. per ton gross weight, in 2 cwt. bags, £2. 17s. 6d. per ton nett weight; chlorate of potash, 8½d. per lb. less 6%; pearl hardening, £3. per ton nett; pure white sulphate of alumina, £4. 2s. 6d. per ton; blanc fixe, £7. 10s. per ton; chloride of barium, £7. 10s. per ton; carbonate of alumina, £28. 15s. per ton nett; aluminate of soda, £33. 15s. per ton nett; in 5 ton lots, £28. 10s.; hydrate of barium, £10. per ton nett.

South Durham salt scarce, at 10s. per ton, f.o.b. Tees.

COALS.—There is a good demand here and sellers are able to command high prices for any small available lots. The best Northumbrian small steam is being delivered ex old contracts at about 8s. 6d. per ton, and same quality for new purchases can be sold at from 12s. 6d. to 16s. per ton, a fact which shows the difficulty of quoting a reliable price. Small steam is steady at 6s. to 6s. 6d. per ton; Bunker unscreened coals 9s to 11s. per ton, coke steady at 16s. to 16s. 6d. per ton.

THE COPPER MARKET.

Messrs. Harrington and Co., in their fortnightly report dated August 17th, 1893, state:—Charters for the past fortnight not being yet advised are estimated as 1,000 tons, making the total since 31st December last 13,150 tons. Same time last year the quantity was 14,150 tons. Exchange 16½d.

The sales of G.o.b.'s and G.m.b.'s during the past fortnight have not exceeded 4,000 tons, at the opening values were £41. 17s. 6d. cash and £42. 5s. three months, and by slight variations they declined to £41. and £41. 10s. respectively. Yesterday there was rather a better tone at the close of the market, and prices improved a shade, closing steady to-day at £41. 2s. 6d. cash and £41. 12s. 6d. three months.

All metals are suffering from the financial difficulties in the United States, and copper is being offered from there at very low prices, causing a considerable increase in American exports, but this must bring its own remedy and improve the distant future.

The total stocks in Liverpool, Swansea, London, and Havre are 44,557 tons, against 45,883 tons on the 31st ult., showing a decrease of 1,326 tons for the fortnight. The stocks include about 2,300 tons of copper sold, but not yet delivered to smelters. The visible supply for the fortnight is 49,652 tons, against 50,516 tons on the 31st ult., showing a decrease of 864 tons. The stock of English G.m.b.'s in Liverpool has been decreased from 10 to 9 tons.

Refined and manufactured sorts are dull. Quotations being:—Tough cake £45 to £45. 10s.; best select, £46. to £46. 10s.; Indian sheets, £51.; strong sheets, £53.; and yellow metal sheets, 4½d. per lb.

The sales of furnace material comprise—at Liverpool: 100 tons Ordinary Montana Matte, to arrive, sold at 8s. 6d., and 350 tons, to arrive, at 8s. 4½d.; 100 tons Columbia Matte, to arrive, at 8s. 7½d., and 40 tons at 8s. 6d.; 1,100 tons of Argentiiferous Montana Matte, to arrive, and 1,000 tons Argentiiferous Anaconda Matte, forward shipments, on private terms.

New Companies.

Malto-Germ Extract Company, Ltd.—CAPITAL £2,000., in shares of £5 each. The object of this company is to manufacture malt-germ extract, diastase, and other chemical products, and to carry on the business of chemists and druggists.

Adams, Webster, and Company, Ltd.—CAPITAL £8,000., in shares of £1. each. This company has been formed to acquire the business, formerly carried at Hackney Downs and elsewhere, by Adams, Webster, and Co., and to carry on the business of carbolic acid manufacturers makers of chemicals and makers of chemical manures, etc. The subscribers to the memorandum of Association are:—W. Adams, 11, Manor Place, London, N.E., manufacturing chemist; J. Tofts, 6, Paulet-road, London, S.E., clerk; U. Owen, 546, Harrow-road, London, W., gent.; A. J. R. Gooderson, 54-6, Palmerston Buildings, London, E.C., accountant; H. N. Howard, 5-6, Palmerston Buildings, London, E.C., accountant; W. C. Brooks, 29, Regent-square, London, W.C., gent.

Odell, Ltd.—CAPITAL £75,000., in shares of £1. each. This company has been formed to take over the works formerly carried on in different places by Henry Odell, to manufacture bricks, pipes, cement, etc. The subscribers to the memorandum of Association are:—Henry Odell, Dawley House, Hayes, Middlesex, brick manufacturer; H. Marks, S. Wharf, Amberley-road, Paddington, merchant; T. Richards, 3, John-street, Bedford-row, London, W.C., solicitor; H. A. Odell, 32, St. Mark's-road, Notting Hill, London, W., brick merchant; E. Odell, Dawley House, Hayes, Middlesex, married woman; C. H. Read, 22, Sale-street, Paddington, solicitor's clerk; T. V. Howells, 10, Richmond Crescent, London, N., solicitor's clerk.

The Patent List.

This list is compiled from Official sources in the Manchester Technical Laboratory, under the immediate supervision of George E. Davis and Alfred R. Davis, who report professionally upon the value of Chemical Patents.

APPLICATIONS FOR ENGLISH LETTERS PATENT.

- Improvements in the Manufacture of Metallic Alloys. R. Howarth. 15,117. August 8.
Coating Metals with Aluminium or its Alloys. E. C. Broadwell. 15,152. August 8.
Improvements in Refrigerator Coils and like Appliances. E. Hesketh and W. H. Thomas. 15,154. August 8.
Water Softening and Purifying Apparatus. H. L. Doulton and A. W. Manger. 15,169. August 8.
A Gas Purifier. H. S. Goate. 15,193. August 9.
Recovering from Sulphate Lyes or Liquor, Sulphuric Acid free from Arsenic and Antimony. Carl von Grabowski. 15,218. August 9.
Manufacture of Soap. J. Trabbert. 15,259. August 10.
Protecting Metals with Coatings of Iron or Nickel. J. W. Swan. 15,263. August 10.
Improvements in Plating Metallic Surfaces. P. Marino. 15,264. August 10.
Ventilating and Smoke Consuming Apparatus. H. H. Cribb and H. J. Hooke. 15,306. August 11.
Producing Fast Colours from Direct Dyes on Cotton. O. Murray. 15,326. August 11.
Apparatus for Detecting the Presence of Firedamp, etc. E. Hardy. 15,329. August 11.
Improvements in the Manufacture of Paper Pulp. W. H. Coldwell. 15,332. August 11.
Recovering Fumes from Galvanizing Baths. W. Skaipe. 15,338. August 12.
Improved Apparatus for the Electrolytical Production of Chlorate of Potash. F. Hurter. 15,396. August 12.

GERMAN PATENTS period ending AUGUST 19, 1893.

Specially abstracted by Dr. H. Zerener, civil engineer, the Patent Office, 20 Eichendorffstrasse, Berlin, N., for the Chemical Trade Journal. Dr. Zerener is willing to at once protest against the grant of such new Patents as may collide with the interests of subscribers.

- 22 D. 5,676. Preparation of Aromatic Substitutes from Amidodiphthylmethanes. Dahl and Co., Barmen.
22 K. 10,558. Preparation of Naphthylendiamine α_1 , α_2 Disulpho Acid. Kalle and Co., Biebrich a/Rhine.

Gazette Notices.

PARTNERSHIPS DISSOLVED.

- E. LIGHT AND G. BEDDOW, manufacturers of disinfectants, Calcutta Works, Farrance-street, Limehouse, E., under the style of Light and Beddow.
H. WHITE AND A. WHITE, brewers, Pontypool, under the style of H. White and Son.

IMPORTS OF CHEMICAL PRODUCTS

AT

THE PRINCIPAL PORTS OF THE UNITED KINGDOM.

LONDON.

Week ending August 12th.

Acetanilide — Holland, 6 pkgs. Beresford & Co.	Acetic Acid — France, 519 pkgs. H. Lorenz	Alkali — France, 535 c. Arnati & Harrison Canada, 78 Charles & Fox Germany, 20 pkgs. L. & I. D. Jt. Co.	Alumina Sulphate — Germany, 101 pkgs. Tough & Henderson	Antimony — France, 4 t. B. & F. Wf. Co., Ltd.	Asbestos — Italy, 20 Schenker & Co.	Barytes — Germany, 21 cks. S. Ward & Co. Belgium, 19 W. Harrison & Co. Holland, 25 J. L. Lyon & Co.	Caoutchouc — E. Indies, 20 c. Prop. Hay's Wf. " 106 Huttenbach & Co. France, 12 H. Johnson & Sons E. Indies, 189 L. & I. D. Jt. Co. U. States, 78 Prop. Bull Wf. Natal, 28 L. & I. D. Jt. Co. P.E., Africa, 15 " 12 E. Indies, 103 " 8 " 15 Ross & Deering " 150 Forbes, Forbes & Co. France, 12 H. Johnson & Sons Zanzibar, 64 Clarke & Smith Ceylon, 37 Somes & Co.	Castor Oil — France, 12 brls. Beresford & Co. " 20 Windschuegl & Co. " 25 Leach & Co. Italy, 20 cs. Stebbing & Co. E. Indies, 200 Anderson, Weber & Smith	Caustic Potash — France, 400 c. Spies, Bros & Co. " 104 Mead, Son & Co.	Chemicals (otherwise undescribed) Germany, 33 pkgs. T. H. Lee " 100 A. & M. Zimmermann " 110 F. Stahlschmidt & Co.	Chloride of Lime — France, 24 pkgs. A. J. Smith	Cream of Tartar — Italy, 30 pkgs. B. Jacob & Sons Spain, 4 W. C. Bacon & Co. Italy, 38 Howard & Son France, 10 W. C. Bacon & Co. " 10 M. Ashby Ltd. " 36 B. & F. Wf. Co. Ltd. " 7 E. W. Carling & Co. Holland, 30 Middleton & Co.	Cresolin — Germany, 47 pkgs. T. H. Lee	Dextrine — Germany, 15 pkgs. Pickford & Co. " 75 Prop. Chmblin's Wf. " 3 Pronk, Davis & Co.	Dyestuffs — Annatto France, 5 pkgs. Thames S. T. & L. Co. Ltd. " 2 Hurford & Middleton Argols Italy, 200 pkgs. Thames S. T. & L. Co. Ltd. France, 22 Williams, Torrey & Co., Ltd. Cochineal Canary Is., 12 pkgs. Sperling & Williams
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Cutch E. Indies, 600 pkgs. R. G. Hall & Co.	Divi Divi E. Indies, 65 pkgs. R. & J. Henderson	Extracts France, 25 pkgs. B. & N. Wf. Co., Ltd. " 157 Carey & Sons " 60 L. J. Levinstein & Sons Germany, 10 T. H. Lee Denmark, 1 J. Sinclair & Son " 1 Evans, Lescher & Co. " 5 A. F. White & Co.	Fustic Jamaica, 20 t. Gillespie Bros. & Co. " 12 Park, Macfadyen & Co.	Gambler E. Indies, 187 pkgs. S. Barrow & Bros. Ltd. " 542 Brown & Elmslie " 395 J. Swire & Sons " 216 L. & I. D. Jt. Co.	Indigo Holland, 2 chts. Ripley, Roberts & Co. E. Indies, 6 Croysdale & Co.	Logwood Jamaica, 20 t. Park, Macfadyen & Co.	Myrabolams E. Indies, 237 pkgs. J. Graves " 667 Williamson & Son " 1,334 Hoare, Wilson & Co. " 273 Union L. Co., Ltd. " 650 W. Shelcott	Naphthol Germany, 3 pkgs. Drolenvaux & Brenner	Orchella E. Indies, 191 pkgs. L. & I. D. Jt. Co.	Sumac Italy, 740 pkgs. J. Kitchin, Ltd. " 700 W. Shelcott " 25 C. S. Lovell	Tanner's Bark Belgium, 76 t. Leach & Co. Adelaide, 52 Devitt & Hett	Turmeric Zanzibar, 70 pkgs. Hoare, Wilson & Co. E. Indies, 115 Lewis & Peat " 115 Devitt & Hett " 500 Henderson Bros.	Valonia A. Turkey, 216 t. A. & W. Nesbitt	Farina — Holland, 50 pkgs. J. Knill & Co.	Glucose — Germany, 600 pkgs. 600 c. Baxter & Hoare " 20 160 Prop. Chmblin's Wf. U. States, 50 " 1,450 2,975 L. Sutro & Co. " 750 750 P. Windmuller & Co. " 500 500 Devitt & Hett " 250 250 Barrett, Tagant & Co. " 250 Prop. Scott's Wf. " 540 500 L. & I. D. Jt. Co. " 25 A. Lyle & Sons Ltd. " 80 275 Un. Lightge Co., Ltd. Holland, 150 150 Prop. Sun Wf. France, 170 170 J. Kitchin Ltd. U. States, 1,235 2,310 R. G. Hall & Co. " 750 750 Devitt & Hett " 250 250 Anderson, Weber & Smith " 50 255 Pillow, Jones & Co. " 8 45 Beck & Pollitzer " 325 775 D. & N. Whys Co.	Magnesium — Germany, 4 pkgs. D. W. Greenhough & Son
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Methyl Alcohol — Germany, 14 dms. Stein Bros.	Mica — E. Indies, 170 W. M. Smith & Sons	Ochre — France, 41 cks. W. Harrison & Co. Holland, 6 cs. Phillips & Graves	Paraffin Wax — U. States, 310 pkgs. Prod. Brokers Co. " 100 brls. Fairclough, Dodd & Co.	Phosphate Rock — Belgium, 200 t. D. de Pass & Co. " 50 Lawes Manure Co. Holland, 200 France, 297 " 127 A. Hunter & Co. Tampa, 1,607 U. States, 2,500 Wyllie & Gordon	Plumbago — Holland, 42 cks. B. Gallaway Ceylon, 56 brls. E. Barber & Co. 359 J. Thredder, Son & Co.	Potash — Canada, 100 c. Charles & Fox Germany, 20 pkgs. T. Palmer	Potassium Bicarbonate — Holland, 3 c. Beresford & Co.	Potassium Carbonate — France, 200 c. Charles & Fox " 18 cks. Carey & Sons	Potassium Permanganate — Germany, 20 pkgs. Beresford & Co.	Potassium Prussiate — Germany, 10 pkgs. Magee, Taylor & Co.	Rosin — U. States, 8,371 brls. Moore & Hole	Saltpetre — Germany, 126 brls. 24 cks. P. Hecker & Co. " 70 T. Merry & Son Chili, 9,649 bgs. A. Ford & Co. E. Indies, 465 Brown & Elmslie	Sodium Acetate — France, 27 pkgs. S. F. Waters & Co. Belgium, 18 " 18	Stearine — Belgium, 26 bgs. H. Hill & Sons	Talc — France, 160 Stobbs & Co.	Tar — Belgium, 11 cks. Arnati & Harrison	Tartaric Acid — Holland, 14 pkgs. B. & F. Wf. Co., Ltd. " 48 Middleton & Co. " 2 F. C. Devon & Co.	Turpentine — Savannah, 2,739 brls. Nickoll & Knight " 780 t. H. Frank & Co.	Ultramarine — Holland, 17 pkgs. Thames S. T. & L. Co., Ltd. " 9 cs. J. Barber & Co. " 8 cks. Spies Bros. & Co. Belgium, 20 H. Kohnstamm " 12 cs. W. Harrison & Co. Holland, 5 Hernu, Peron & Co. " 4 Haefner, Hilpert & Co. Germany, 4 cks. J. Kitchin Ltd. Belgium, 9 pkgs. Leach & Co.	Verdigris — E. Indies, 3 pkgs. L. & I. D. Jt. Co.	Vermillion — Hong Kong, 10 cs. S. Figgis & Co.	White Lead — Germany, 23 cks. G. F. Clifford Belgium, 9 brls. J. L. Lyon & Co. Germany, 9 cks. Petri Bros. Holland, 22 Burrell & Co.	Zinc Oxide — Germany, 6 cks. 10 pkgs. Beresford & Co. Holland, 125 brls. M. Ashby Ltd. " 4 cks. A. Zumbach & Co. Germany, 25 J. Matton " 70 brls. M. Ashby Ltd. Belgium, 10 cks. Ross & Deering
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LIVERPOOL.

Week ending August 10th.

Acetic Acid — Rotterdam, 5 cbys.	Aniline Salts — New York, 33 cks. Cohen, Lausen, & Co.	Antimony — Valparaiso, 91 sks. Brownells & Co.	Antimony Salts — Rotterdam, 2 cks.	Barytes — Bremen, 6 cks. Rotterdam, 10	Bichromate — Genoa, 1 ck.	Bone Ash — B. Ayres, 61 bgs. G. Hallawell & Co. Cadiz, 24 t.	Boracic Acid — Antofagasta, 97 bgs.	Borate of Lime — Valparaiso, 397 pkgs. Duncan Fox & Co. Antofagasta, 3,000 bgs.	Carbonic Acid Gas — In transit, 98 tubes.	Colours — Rotterdam, 11 cs. 33 cks. Antwerp, 10 J. T. Fletcher & Co.	Cottonseed Oil — New York, 210 brls.	Cream of Tartar — Bordeaux, 1 bg. Tarragona, 5 pps. 1 ck. Rotterdam, 30 kgs. 18 Barcelona, 5 Sachse & Klemm	Dyestuffs — Alizarine Rotterdam, 44 cks. Annatto Bordeaux, 20 cks. Argols Bordeaux, 78 cks. Cutch Rangoon, 1,500 bxs. Extracts Colon, 248 cs. Benito, Novello, & Co. Fiume, 500 brls. De Clermont & Donner Baltimore, 25 R. Dale & Co. " 4 Houston & Laurie " 20 Antwerp, 1 New York, 432 ps. Carthage, 1,952 Widow, Duranty, & Son Colon, 649 cs. Edwards Bros. " 2,096 Widow, Duranty, & Son " 713 Leech, Harrison, & Co. " 2,507 D. Midgley & Son New York, 923 ps. Edwards Bros.	Fustic Extract Philadelphia, 50 brls.	Gambler Singapore, 434 bls.	Madder Smyrna, 10 bls. Rotterdam, 7 cks.	Orchella Valparaiso, 61 bls. F. Huth & Co. " 18	Saffron Valencia, 1 cs.	Valonia Smyrna, 220 t. Barry Bros. " 404 bgs.	Dyestuffs (otherwise undescribed) New York, 25 bxs.	Farina — Fiume, 250 bgs
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Glucose—		
New York,	525 brls.	
Baltimore,	50	
New York,	10	Barrett & Co.
Hamburg,	176 cks	
Iodine—		
Valparaiso,	33 brls.	W. & J Lockett
Ochre—		
Rouen,	96 cks.	Co-op. W'sale Society, Ltd.
Bordeaux,	70	
Paint—		
Boston,	20 cs.	G. Bello
Paraffin Scale—		
Rangoon,	330 bxs.	
Phosphate—		
Montreal,	290 t.	Phosphate Co., Ltd.
Ghent,	500 bgs.	
Potash—		
Montreal,	35 brls	Wilson, Paterson, & Co.
Rouen,	108 cks.	Co-op W'sale Society, Ltd.
Montreal,	15 brls.	Viewland & Co.
Dunkirk,	36 dms	10 cks.
Pumice Stone—		
Rotterdam,	10 cs.	
Pyrites		
Huelva,	3,321 t.	Matheson & Co.
	1,799	Tennants & Co.
Rosin—		
Para,	156 bgs.	Arsenio, Pinto, Leite, & Co.
Bordeaux,	209 cks.	
New York,	500 brls.	
Salt—		
Hamburg,	160 t.	
Saltpetre—		
Hamburg,	6 cks. 100 kgs.	
Silver Sulph—		
Colon,	18 cs.	Sanchez & Gaffron
Soap—		
Havre,	100 cs	Cunard S. S. Co., Ltd.
Soapstone—		
Bordeaux,	700 bgs.	G. G. Black- well
Stearine—		
Philadelphia,	100 brls.	
Antwerp,	50 bgs.	J. T. Fletcher & Co.
	32	
Sulphur—		
Huelva,	1,446 t.	Matheson & Co.
Tallow—		
New York,	100 tcs.	Bell, Son, & Co.
Boston,	50 hds.	
	116 G. H. Hammond & Co., Ltd.	
Baltimore,	110 brls.	
Rotterdam,	1	
Philadelphia,	10	
Boston,	212 hds.	115 16 cks.
Tartar—		
Bordeaux,	10 cks.	
Tartaric Acid—		
Rotterdam,	9 cks.	Sachse & Klemm
"	10	
Turpentine—		
Trinidad,	12 dms.	W. I. & Pac. S. S. Co.
Ultramarine—		
Rotterdam,	22 cs. 7 cks.	
White Lead—		
Rotterdam,	84 cks.	
Zinc Ashes—		
Antwerp,	3 cks.	J. T. Fletcher & Co
Zinc Chloride—		
Amsterdam,	20 cks.	
Zinc Oxide—		
Rotterdam,	75 cks.	
Antwerp,	10 brls.	J. T. Fletcher & Co.
"	76	

Acid— Leghorn,	20 cs.	Wilson, Sons, & Co., Ld.
Asbestos — Genoa, Flushing,	13 cs. 2	Hutchinson & Son
Caoutchouc — Hamburg,	1 cs.	C. M. Lofthouse & Co.
Castor Oil — Genoa,	30 cs.	Wilson, Sons, & Co., Ld.
Chemicals (<i>otherwise undesignated</i>) Bremen, 1 cs. Göthenburg,	1 ck. 5 cs.	Veltmann & Co. Wilson, Sons, & Co., Ld.
Stettin,	61 cks.	"
Colours— Rotterdam,	2 cs. 1 ck	G. Lawson & Sons
Flushing,	4 20	" "
"	1	Brasch & Rothen- stein
Amsterdam,	2	W. & C. L. Ringrose
Hamburg,	40	Wilson, Sons, & Co., Ld.
Danzig,	10	"
Bremen,	32	Veltmann & Co.
"	4 Cs. 1	J. Pyefinch & Co.
"	11	"
Rotterdam,	8 pks. 27	10 cs Hutchinson & Son
Stettin,	20	"
Antwerp,	1	Bailey & Leetham
Rouen,	3	Rawson & Robinson
Flushing,	19 cs. 52	Hutchinson & Son
Rotterdam,	49 pks.	W. & C. L. Ringrose
Dext. line— Stettin,	70 bgs.	Wilson, Sons, & Co., Ld.
Dyestuffs— Alizarine Rotterdam,	12 cks.	Hutchinson & Son
"	6 pks.	G. Lawson & Sons
"	184	6 W. & C. L. Ring- rose
Argols Marseilles,	43 bgs.	Wilson, Sons, & Co., Ld.
Madder Marseilles,	1 ck.	"
Farina— Harlingen,	746 bgs.	"
Ghent,	188 bxs.	Wilson, Sons, & Co., Ld.
Stettin,	300	"
Glucose— New York, Stettin, Rotterdam,	350 brls 650 bgs. 50	Hutchinson & Son
Lime— New York,	515 bgs.	Wilson, Sons, & Co., Ld.
Litharge— Hamburg,	1 kg	Wilson, Sons, & Co., Ld.
Nitrate— Rotterdam,	12 cks.	Hutchinson & Son
Ochre— Marseilles, Antwerp,	77 cks. 105 bgs.	"
Paint— New York,	19 cs.	Wilson, Sons, & Co., Ld.
Phosphate— Dunkirk,	150 t.	"
Pitch — Rotterdam,	15 cks.	Hutchinson & Son
Plumbago— Leghorn,	200 bgs.	"
Potash— Dunkirk,	200 bgs. 40 dms.	Wilson, Sons, & Co., Ld.
Rosin — Bordeaux,	6 cks.	"
Saltpetre— Hamburg,	10 kgs.	Bailey & Leetham
Size— Rotterdam,	6 cs.	G. Lawson & Sons

Soap—	Marseilles, 19 cs.	
	New York, 450 pks	
	Antwerp, 25	
Sodium Nitrate—		
	Rotterdam, 20 cks.	Hutchinson & Son
Stearine—		
	Rotterdam, 23 brls.	Hutchinson & Son
	Antwerp, 13 bgs	Hornby & Needler
Tallow—		
	Antwerp, 25 pks.	Wilson, Sons, & Co., Ltd.
Tartar—		
	Bordeaux, 1 ck.	Rawson & Robinson
	Marseilles, 5	
Tartaric Acid—		
	Rotterdam, 5 cks	G. Lawson & Sons
Tin Oxide—		
	Rotterdam, 101 brls.	Hutchinson & Son
Turpentine—		
	Bordeaux, 5 brls.	Rawson & Robinson
Varnish—		
	New York, 10 brls.	Wilson, Sons, & Co., Ltd.
Verdigris—		
	Marseilles, 35 cks.	
White Lead—		
	Rotterdam, 48 cks.	Hutchinson & Son
	Antwerp, 27	Bailey & Leetham
GLASGOW.		
<i>Week ending August 17th.</i>		
Alum—		
	Hamburg, 116 cks.	
	Rotterdam, 20	J. Rankine & Son
Antimony Fluoride—		
	Hamburg, 22 cks.	
Barium Sulphate—		
	Antwerp, 20 bgs.	
Barytes—		
	Rotterdam, 46 cks	J. Rankine & Son
	" 117	
Castor Oil—		
	Antwerp, 56 cks.	
Cellulose—		
	Hamburg, 102 bls.	
Chemicals (otherwise undescribed)		
	Hamburg, 1 cs.	1 kg.
Chrome Ore—		
	Smyrna, 1,800 t.	J. & J. White
Colours—		
	Rotterdam, 1 ck. 2 cs.	J. Rankine & Son
	Hamburg, 10	2 1 kg.
	Rotterdam, 3	3 61 pkgs.
Cottonseed Oil—		
	New York, 6 brls.	
Dyestuffs—		
	Alizarine	
	Rotterdam, 132 cks.	16 pkgs.
	Extracts	
	Baltimore, 12 brls.	J. Strang & Son
	" 50	M'Arthur, Scott & Co.
	" 25	J. Dawson & Co.
	Antwerp, 3 cks.	1 cs.
Indigo		
	Rotterdam, 13 chts.	J. Rankine & Son
Madder		
	Rotterdam, 3 cks.	
Yalonia		
	Macri, 542 t	W. Buntin & Co.
Farina—		
	Hamburg, 180 bgs.	
	Delfzijl, 100	
Lead Acetate—		
	Hamburg, 11 cks.	
Pitch—		
	Antwerp, 9 cks.	
Potashes—		
	Rotterdam, 44 cks.	J. Rankine & Son
	Montreal, 18 brls.	

Pyrites—
Huelva, 1,815 t Tharsis Co., Ld.

Saltpetre—
Hamburg, 6 cks.

Stearine—
Rotterdam, 12 cks J. Rankine & Son

Sulphur—
Huelva, 1,800 t. Seville Sulphur & Copper Co., Ld.

Sulphuric Acid—
Hamburg, 9 cks.

Tannin—
Hamburg, 2 cks.

Tartar—
Oporto, 5 cks.

Waste Salt—
Hamburg, 2,603 bgs. 131 cks. 354 l.

Zinc Oxide—
Rotterdam, 35 cks. J. Rankine & Son

New York, 100 brls.

TYNE.

Week ending August 12th.

Aniline Colours—
Rotterdam, 2 cs. 3 cks. Tyne S. S. Co.

Barytes—
Rotterdam, 508 bgs. Tyne S. S. Co.

Pitch—
Archangel, 250 brls.

Saltpetre—
Hamburg, 19 cks. Tyne S. S. Co.

Sodium Nitrate—
Iquique, 17,037 bgs. Scott Bros.

Sulphur—
Pomaron, 480 t. Mason & Barry

Tar—
Archangel, 1,357 brls.
Bergen, 105

Tartaric Acid—
Rotterdam, 4 cks. Tyne S. S. Co.

Zinc Oxide—
Rotterdam, 25 cks. Tyne S. S. Co.
Hamburg, 25 „ „
Antwerp, 15 brls. „ „

GOOLE.

Week ending August 9th.

Antimony—
Boulogne, 5 cks.

Barytes—
Rotterdam, 12 cks.

Caoutchouc—
Boulogne, 3 cks.

Dyestuffs—
Allsarine
Rotterdam, 36 pkgs. 25 brls.
Extracts
Hamburg, 25 cks.

Dyestuffs (*otherwise undescribed*)
Ghent, 1 cs. 1 ck.
Boulogne, 3 37 1 pkge.

Farina—
Hamburg, 1,370 bgs.

Potash—
Rotterdam, 20 cks.
Calais, 4 dms.
Dunkirk, 70 28

Saltpetre
Rotterdam, 200 bgs.
Antwerp, 170

Soda—
Rotterdam, 2 cks.

Waste Salt—
Hamburg, 170 l.

GRIMSBY.

Week ending Aug 12th.

Chemicals (*otherwise undescribed*)
Hamburg, 11 pkgs.

Dyestuffs (*otherwise undescribed*)
Dieppe, 35 cks.

Farina—
Hamburg, 130 bgs.

Plumbago—
Hamburg, 1 pkge.

EXPORTS OF CHEMICAL PRODUCTS

OF

THE PRINCIPAL PORTS OF THE UNITED KINGDOM.

LONDON.

Week ending August 16th.

Alkali—		
Vancouver,	9 c.	£3
Aluminous Cake—		
Rotterdam,	50 t.	£102
Ammonia (Liquid)—		
Lyttelton,	8 c.	£14
New York,	4 pkgs.	£14
Ammonium Carbonate—		
New York,	100 brls	£320
St Petersburg,	5 t.	150
Paris,	7 17 c.	217
Ammonium Chloride—		
Melbourne,	2 t. 6 c.	£55
Mersyne,	8	14
Paris,	1 12	48
Ammonium Nitrate—		
Algoa Bay,	17 c.	£52
Ammonium Sulphate—		
Hamburg,	210 t.	£2,790
Samarang,	51	714
Arsenic—		
B. Ayres,	20 kgs.	£17
Bisulphite of Lime—		
Oporto,	13 c.	£12
Borax—		
Dunedin,	10 c.	£15
Copenhagen,	17	40
Danzig,	4	10
Hamburg,	1 t. 10	75
Borax Crystals—		
Sydney,	1 t. 2 c.	£30
Carbolic Acid		
Napier,	25 drs.	£23
Melbourne,	2 c. 31 pkgs.	50
Sydney,	4 cks. 5 cs.	36
Barcelona,	46	232
Treport,	2 t. 2 c.	12
Rio de Janeiro,	4	115
Carbon Bisulphide—		
B. Ayres,	10 c.	£10
Caustic Potash—		
Napier,	1 t. 1 c.	£35
Melbourne,	1	30
Caustic Soda—		
Sydney,	3 t. 10 c.	£44
Algoa Bay,	10	15
Rockhampton,	5	12
Melbourne,	8 13	141
Chemicals (otherwise undescribed)		
Cape Town,	3 cs.	£30
Melbourne,	26 pkgs	32
Demerara,	6 3 c.	32
New York,	6	17
Chloride of Lime—		
Dunedin,	10 c.	£12
Pt. Lyttelton,	1 t.	25
Citric Acid—		
Calcutta,	1 ck. 2 c.	£27
Rotterdam,	2	16
Genoa,	10	80
Hobart,	3	25
Hamburg,	1 1 t.	241
Bombay,	1 cs.	5
Barcelona,	2 2 3	393
St. Petersburg,	2 17 20 cks.	1,270
Melbourne,	11	84
Coal Products—		
Aniline Dyes		
Calcutta,	1 cs.	£28
Shanghai,	15	94
New York,	32 brls	640
Creosote		
Seizette,	591 brls.	£277
Danzig,	284	162
Naphthalene		
Riga,	1 ck.	£19
Antwerp,	2	19
Cologne,	1	12
Copenhagen,	6	10
Paraffin Wax		
Madras,	20 cs.	£36
Pitch		
Boston,	431 cks.	£235
Hong Kong,	100	95
New York,	2,053 bgs.	362
Havre,	300 t.	350

Tar		
Hamburg,	40 cks.	£20
Boston,	125	60
Bombay,	15 mts.	26
Tar Oil		
Paris,	20 cks.	£50
Toluol		
Rotterdam,	40 pns.	£350
Copperas—		
B. Ayres,	10 c.	£10
Cream of Tartar—		
Wellington,	1 t. 5 c.	£99
Sydney,	1	97
Napier,	5	22
Auckland,	13	49
Lyttelton,	15	61
Dunedin,	5	22
Disinfectants—		
Ostend,	9 cs.	£12
Melbourne,	1 t. 1 000 drs.	360
Sydney,	6	10
Algoa Bay,	2 t. 3 pkgs.	25
Hamburg,	30 cks.	150
Paris,	10	50
Calcutta,	50 767 dms.	137
Flowers of Sulphur—		
Sydney,	12 t.	£73
Guano—		
Cartagena,	5 t.	£17
Manure—		
Treport,	59 t. 17	£360
Bordeaux,	24 19	150
Foxton,	24	54
Venice,	200	1,220
Newfairwater,	147 16	550
Riga,	220 1	548
Trinidad,	3 12	63
Stettin,	298 11	1,200
Madeira,	15	138
Auckland,	125	531
Phosphorus—		
Natal,	4 cks.	£11
Potash—		
Libau,	5 c.	£7
Potash Cr. stals—		
Brussels,	14 c.	£86
Paris,	1	10
New York,	3 cs.	68
Potassium Bichromate—		
M. Video,	2 cks.	£25
Potassium Bromide—		
Melbourne,	1 c.	£9
Potassium Iodide—		
Melbourne,	1 c.	£64
Potassium Nitrate—		
Trinidad,	3 t. 12 c.	£63
Red Precipitate—		
M. Video,	1 cs.	£7
Salicylic Acid		
Cape Town,	1 cs.	£13
Saltpetre—		
Santos,	4 t. 8 c.	£99
Algoa Bay,	18	20
Melbourne,	1	22
Oporto,	8 1	162
Rio de Janeiro,	10 15	232
Newcastle,	10	11
Venice,	2 3	45
Libau,	2 10	60
Salts of Tartar—		
Libau,	5 c.	£8
Sheep Dip—		
M. Video,	200 drs.	£60
Gisborne,	50 cs.	150
Napier,	175	425
Algoa Bay,	300	77
Sydney,	698 500 10 c	1,930
Wellington,	3 t. 14	75
Soda Ash—		
Hobart,	4 t. 8 c.	£22
Sodium Bicarbonate—		
Napier,	1 t. 5 c.	£9
Algoa Bay,	10	8
B. Ayres,	1	9
Melbourne,	3	20
Marseilles,	100	75
Sodium Silicate—		
Napier,	4 t. 17 c.	£28

Sodium Sulphate—		
Baltimore,	22 t.	£60
Strontium Nitrate—		
Oporto,	9 c.	£21
Sulphur—		
E. London,	50 kgs.	£20
Cape Town,	2 t. 5 c.	24
Mosel Bay,	17 17	221
Superphosphate—		
Riga,	845 t. 9 c.	£2,356
Tartaric Acid—		
Sydney,	8 c.	£44
Napier,	4	21
Dunedin,	5	28
Melbourne,	1 t 10 20 kgs.	247

LIVERPOOL.

Week ending August 16th.

Acetic Acid—		
Algoa Bay,	16 c. 1 q	£14
Alum—		
Mersyne,	4 t.	£20
Malta,	9 c.	2
Volo	2 11	12
M. Video,	5 4	35
Oporto,	1 12	8
Constantinople,	2 1	10
Calcutta,	50 5	276
Cape Town,	1	15
Galatz,	1	7
Syra,	2 15	21
Larnaca,	2 15	5
Melbourne,	2	15
Sourabaya,	11 15 2	80
Lisbon,	3 15	28
Alexandria,	9 10	66
Piræus,	5 2 1	30
Ancona,	2 2	15
B. Ayres,	4 10	31
Alumina Sulphate—		
Boston,	3 cks.	
Aluminous Cake—		
Calcutta,	32 t. 7 c. 1 q.	£121
Ammonia—		
Manila,	1 t 2 c.	£39
Ammonium Carbonate—		
Antwerp,	15 c. 1 q.	£22
Vera Cruz,	2	7
Ammonium Chloride—		
St. Petersburg,	5 t. 7 c. 3 q.	£170
Las Palmas,	19	263
Galatz,	4 1	8
Ibrail,	10 3	17
Dedeagatch,	13	20
Ojessa,	1 8 2	49
Tripoli,	3	6
Genoa,	2 3	42
Barcelona,	1	33
Alexandria,	1	34
Ammonium Sulphate—		
Sourabaya,	100 t. 10 c.	£1,200
Rouen,	15 4 3 q.	165
Rotterdam,	40 6	525
Hamburg,	10 2 1	138
Gr. Canary,	4 1	57
Las Palmas,	15 10	214
Boston,	12	20
Asbestos—		
M. Video,	6 cs.	
Barium Chlorate—		
Hamburg,	19 c.	£79
Bleaching Powder—		
Baltimore,	56 kgs.	
Boston,	272	
Genoa,	47	
Havana,	21 brls.	
Montreal,	18	
New York,	236	
Venice,	30 10	
Vera Cruz,	11	
N. Orleans,	35	
Boracic Acid—		
Havre,	5 t.	£187
Hamburg,	12 c.	22
Rotterdam,	5 2 q.	10
Antwerp,	2 16	105
Philadelphia,	1 12 3	51

Borax—		
Ibrail,	17 c. 2 q.	£25
Amsterdam,	4 t. 5	123
Hamburg,	2 7	70
Rotterdam,	2 15 3	84
Antwerp,	6 2 3	185
Calcined Magnesia—		
Manila,	1 cs.	
Calcium Chloride—		
B. Ayres,	4 t. 13 c.	£14
Caoutchouc—		
New York,	2 cs.	
Carbolic Acid—		
Rotterdam,	5 t.	£120
Santander,	7 c. 3 q.	23
Alexandria,	1 15	36
New York,	5	220
Genoa,	1 4 3	60
Caustic Potash—		
Cadiz,	2 t. 2 c.	£47
Caustic Soda—		
Amsterdam,	30 dms.	
Ancona,	75	
Baltimore,	31 270 brls.	
Barcelona,	450 90	
Bari,	112	
Bombay,	25	
Boston,	250	
Calcutta,	366	
Carri,	6	
E. London,		12 bxs.
Fiume,	130	
Galatz,	90	
Genoa,	123	
Hamburg,	88	
Havana,	100	
Havre,	15	
Lisbon,	105	
Marseilles,	10	
Messina,	70	
Naples,	45	
New York,	918	
Odessa,	255	
Oporto,	25	
Para,	30	
Pernambuco,	66	
Rosario,	9	
Rotterdam,	94	8
St. Petersburg,	400	
San Sebastian,	30	
Seville,	150	
Tampico,	100	
Trieste,	45	
Adelaide,	70	
Bremen,		5
B. Ayres,	40	
Canterbury,	6	
Maceio,	75	
Montreal,	50	
Nagasaki,	100	
N. Orleans,	60	27
Nuevitas,	18	
Philadelphia,		50
Piræus,	50	
Quebec,	25	
Stockholm,		1 ck.
Yokohama,	100	
Chemicals (otherwise undescribed)		
Trieste,	3 t. 2 q.	£106
Naples,	10 c.	17
Bremen,	6	10
Antwerp,	15	22
Mersyne,	12	20
Larnaca,	4	7
Stettin,	6	11
Hamburg,	6	11
China Clay—		
Boston,	300 t.	
Chromium Acetate—		
Naples,	1 t.	£58
Coal Products—		
Aniline Colours		
New York,	13 cks.	
Smyrna,	16 cs.	
Aniline Oil		
Magog,	2 dms.	
Aniline Salts		
Magog,	10 cs.	
Tar		
Genoa,	6 brls.	
Lagos,	20 cks.	
Leghorn,	1	
Sierra Leone,	30 15	

Cobalt Oxide—

Rotterdam,	2 cks.	£64
Hamburg,	2 cs.	70

Copperas—

Galatz,	1 t. 13 c.	£54
Caldera,	11 19 1 q.	24
Constantinople,	4 10	7
Santos,	4 10	10
Piræus,	7 12	17
Valparaiso,	7 3	2

Copper Sulphate—

Fiume,	6 t. 5 c.	£100
Vera Cruz,	4 14	74
Lisbon,	5 1 2 q.	80
Venice,	7 3 1	108
Constantinople,	2	31
Odessa,	4 18 2	71
Dedegatch,	1 11 3	23
Bari,	43 2 2	668
Ancona,	34 14 3	523
Naples,	34 3 3	526
Oporto,	4 1 2	88
Beirut,	10	8
Trieste,	10 3	146
Dunkirk,	6 18 3	109
Copenhagen,	11	9
Talcabano,	1 7	20
B. Ayres,	5 2	80
Genoa,	59 5 3	934
Porto Alegre,	10	8

Dextrine—

Vera Cruz,	20 bgs.	
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Disinfectants—

Para,	6 c.	£6
Malta,	2 t. 6 1 q.	32
Valparaiso,	2 1	6

Farina—

Boston,	4 cks.	
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Iron Oxide—

Hong Kong,	7 c. 3 q.	£5
Montreal,	4 t. 8	26

Lead Acetate—

Calcutta,	1 t. 12 c.	£43
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Lime—

Accra,	1 t. 5 c.	£5
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Litharge—

Pernambuco,	10 kgs.	
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Magnesia—

Vera Cruz,	6 cs.	
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Magnesium Chloride—

Montreal,	3 t. 17 c.	£10
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Magnesium Citrate—

Manila,	2 cs.	
Rosario,	2	

Magnesium Sulphate—

Guayaquil,	10 cs.	
Bombay,	55 brls.	
Santos,	60	

Manure—

Gr. Canary,	20 t.	£75
Bordeaux,	69	377
St. Nazaire,	1,200 5 c. 3	5,545
Landerian,	172 9	1,003
Teneriffe,	30 3 1	237

Metallic Sodium—

Marseilles,	1 t. 6 c. 2 q.	£159
Rotterdam,	3 8 2	666

Muriatic Acid—

Maceic,	10 c.	£5
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Ochre—

Cape Haiti,	20 cs.	
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Oxalic Acid—

Barcelona,	13 c. 2 q.	£19
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Paint—

Callao,	116 kgs.	
Cape Town,	10 cs.	
Havre,	5 cks.	
Iloilo,	250 6	
Iquique,	4	
Lisbon,	10 14	
Loanda,	1	
Manaos,	6	
Manila,	18	
Marseilles,	50 bls.	
Panama,	4	
Sierra Leone,	240 18	20 dms.
Cape Haiti,	4	
Cienfuegos,	4	
Ferrol,	5	
Lagos,	183	
Mollendo,	4	
Old Calabar,	5	
Para,	13	
Penedo,	10 brls.	
Philadelphia,	4	
Port Natal,	5	
Progreso,	4	
Puerto Plata,	8	
Valparaiso,	54	

Painters' Colours—

Antwerp,	12 brls. 13 kgs.	
Bahia,	1 ck.	
Baltimore,	100	
Bordeaux,	1 bx.	
B. Ayres,	130 50 41 cs.	
Calcutta,	20	
Callao,	6 28 dms.	
Cavite,	17	
Chalcis,	1	
Constantinople,	50	
Corfu,	4	
Gothenburg,	60 bgs.	
Leghorn,	20	
Malaga,	6	
Manaos,	5 20 44	1
Mayaguez,	4 tcs.	
Montreal,	192	7
Para,	23 3 28	1
Rio de Janeiro,	50	
Trieste,	100 bgs.	
Valparaiso,	6	
Alexandria,	35	
Amsterdam,	6 6	
Arecibo,	2 tcs.	
Bilbao,	6	
Guayaquil,	10 53	
Havana,	5 33	
Honolulu,	13 60	
Iquique,	30	
Lisbon,	1 4	
Maceio,	6	
M. Video,	7	
New Orleans,	11	
Patras,	7	
Piræus,	7	
Ponce,	2	
Puerto Plata,	30	
Punta Arenas,	5 pkgs.	
San Juan, P.R.,	1	
Savanna,	14 4	
Seville,	6	
Smyrna,	400	
Syria,	10	
Taltal,	20	
Warri,	1 cs. 29 dms.	

Paraffin Wax—

Odessa,	100 bgs.	
Para,	25 cs.	
Rio de Janeiro,	25 dms.	

Potashes—

B. Ayres,	1 t. 4 c.	£20
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Potassium Bicarbonate—

Hong Kong,	6 c.	£14
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Potassium Bichromate—

Ghent,	1 t. 5 c.	£48
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Potassium Carbonate—

Rio de Janeiro,	11 c. 1 q.	£11
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Potassium Chlorate—

Venice,	8 c.	£26
Rotterdam,	3 t.	171
Malta,	6	17
Lisbon,	10	30
Gothenburg,	2 5	135
Copenhagen,	1 5	84
Odessa,	10	30
Wellington, N.Z.,	10	7
Rio de Janeiro,	1	56
Alexandria,	5	18
Hamburg,	2 10	140
Antwerp,	1	70
New York,	11 10	715
Hioigo,	7 10	423
St. Petersburg,	6 10	444
Kobe,	7	412
Bari,	8	25
Genoa,	5	317

Potassium Prussiate—

New York,	3 t.	£245
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Salt—

Amsterdam,	224 t.	
Antwerp,	75	
Baltimore,	400	
Benin,	20	
Boma,	5	
Boston,	120	
B. Ayres,	30	
Callao,	2 c.	
Ghent,	236	
Montreal,	1,397	9
New Orleans,	150	
Rotterdam,	235	
St. John's, N. B.,	555	
Stockholm,	149	15
Sydney,	100	
Wyburg,	660	
Calcutta,	1 4	
C. C. Castle,	47 12	
Charlotte Town,	530	
Iceland,	60	

Mannos—

Matadi,	30 10	
M. Video,	5	
Rangoon,	10 10	
Richibucto,	1 10	
St. John's, Nfld.,	217	
San Juan, P.R.,	1 6	
Santos,	2 5	
Sierra Leone,	2	
Trinidad,	2	
Yokohama,	18	

Saltpetre—

Santos,	4 t. 1 c. 1 q.	£89
Savanna,	5	8
Pernambuco,	3 10 3	90
Para,	2 10	56

Sheep Dip—

Algoa Bay,	1 t. 5 c. 2 q.	£50
B. Ayres,	1	63
M. Video,	13 2 2	360
Punta Arenas,	2 12 1 68 cks.	501
New Orleans,	3 11	133

Size—

Rotterdam,	20 cks.	
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Soap—

Accra,	265 bxs.	
Adriah,	120	
Alexandria,	11 cs.	
Algoa Bay,	1,148 10	
Antigua,	25	
Appam,	15	
Attabo,	101	
Axim,	95	
Bakana,	150 2	
Barbadoes,	156	
Bayin,	18	
Bermuda,	90	
Bombay,	50	
Boston,	28 2 cks.	
Calcutta,	500 1	
Cameroon,	40	
C. C. Castle,	1,092	
Chama,	40	
Curacao,	460	
Genoa,	20	
Gibraltar,	50	
Iloilo,	1	
Loanda,	30	
Manila,	3	
Mossamedes,	12 1	
Naples,	6	
Nassau,	15	
Neuchatel,	120	
New York,	500 1	
Opobo,	3,250	
Philadelphia,	3	
Piræus,	90	25 bds.
Port Natal,	2,580	
Quebec,	1	
Qua Eboe,	1,000	
Rangoon,	1,000	
St. John's, Nfld.,	80	
Savanna,	14	
Shanghai,	5,123	
Teneriffe,	150	
Trinidad,	2,049	
Valparaiso,	26	
Victoria, B. C.,	3	
Antwerp,	200	
Brussels,	400	
B. Ayres,	2 5	
Cape Town,	1,050	
Constantinople,	20	
E. London,	1,069 132	
Elmina,	100	
Gr. Canary,	25	
Hong Kong,	20	
Lagos,	50	
Limassol,	10	
Monrovia,	32	
Para,	1	
Rio de Janeiro,	1	
Salt Pond,	212	
Sierra Leone,	3	
Warri,	300	
Winnebah,	20	

Soda Alkali—

Lisbon,	35 brls.	
Sfax,	25	
Odessa,	135	

Soda Ash—

Antwerp,	200 bgs. 38 cks.	
Auckland,	115	79 kgs.
Baltimore,	4,895 231	135 tcs.
Boston,	505 137	23
B. Ayres,	400 brls.	
Gothenburg,	29	
M. Video,	75	
New York,	2,770 bgs. 46	161
Oporto,	45	
Rio de Janeiro,	460 brls.	
Syria,	280	
Venice,	42	
Calcutta,	6	
Carthage, Sp.,	8	

Genoa,

Ghent,	20	100 bgs.
Hamburg,	18	100
Maranham,	10	
Odessa,	30	
Philadelphia,	97 tcs. 88	400
Riga,	263	
Rotterdam,	350	
St. Petersburg,	105	
San Francisco,	107	
Yokohama,	100 brls.	

Soda Crystals—

Baltimore,	280 cks.	
Constantinople,	10 brls.	
Halifax,	5 10 kgs.	
Philadelphia,	175 280	374
Boston,	560	
Canada,	2 cs.	

Soda Salts—

Yokohama,	20 kgs.	
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Sodium Arseniate—

Rouen,	4 cks.	
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Sodium Biborate—

Hamburg,	20 cks.	
Havre,	50	
Rotterdam,	20 brls.	

Sodium Bicarbonate—

Ancona,	60 kgs.	
Antwerp,	100	8 cks.
Auckland,	40	
Constantinople,	10	
Ghent,	10	
Gothenburg,	20	
Halifax,	100	
Havre,	80	
Lyttleton,	50 bgs.	
Montreal,	150	
Rangoon,	20	
Singapore,	14 4	
Sourabaya,	10	
Amsterdam,	20 3	
Hamburg,	40	
Naples,	20	
Stettin,	105	13 brls.
Venice,	225 kgs.	

Sodium Bichromate—

Ghent,	28 cks.	
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Sodium Carbonate—

Rotterdam,	6 cks.	
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Sodium Chlorate—

Hamburg,	4 t. 10 c.	£337
N. Orleans,	1	71
St. Petersburg,	2 19	220
Rotterdam,	1	70
St. Petersburg,	121 kgs.	
Rotterdam,	20	
Hamburg,	90	
Boston,	125	

Sodium Silicate—

Barcelona,	250 brls.	
Lisbon,	8	
Piræus,	18	
Las Palmas,	1 bg.	

Sodium Sulphate—

Santos,	25 brls.	
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Sulphur—

Caustic Soda—

Danzig,	35 dms.
Helsingfors,	3 cks.
Lilau,	270
Messina,	35
St. Petersburg,	21
Wyburg,	9

Chemicals (otherwise undescribed)

Amsterdam,	11 cks.	10 pks.	20 cs.
Bordeaux,			
Constantinople,	8	85	25
Christiania,		16	
Copenhagen,	42		1
Dunkirk,	38	134	
Gothenburg,	50	15 pks.	8
Hamburg,	8		205
Konigsberg,	2		
Lilau,		100	
New York,	20		
Rotterdam,	30		10
Riga,	24		
Stockholm,	4		2
St. Petersburg,	162	7	
Stettin,	34	2	
Trieste,	3		

Cottonseed Oil—

Antwerp,	436 c.
Bremen,	100
Flushing,	170
Gothenburg,	40
Hamburg,	300
Konigsberg,	100
Stockholm,	301
Stettin,	85
Trieste,	603

Creosote—

Amsterdam,	10 cks.
Copenhagen,	15
Danzig,	50
Gothenburg,	150
Stockholm,	15

Dyestuffs (otherwise undescribed)

Christiania,	12 pks.
Flushing,	1 ck.
Hamburg,	1
New York,	7

Linseed Oil—

Christiania,	498 c.
Copenhagen,	44
Drontheim,	146
Dunkirk,	34
Hamburg,	53
Hango,	104
Helsingfors,	174
Stavanger,	34
Trieste,	146
Wyburg,	20

Manganese—

Gothenburg,	10 t.
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Manure—

Copenhagen,	46 t.
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Mineral White—

Flushing,	100 bls.
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Ochre—

Amsterdam,	7 cks.
Gothenburg,	10

Painters' Colours—

Antwerp,	2 cs.	96 cks.	41 pks.
Amsterdam,		4	
Barl,	1 kg.		
Bordeaux,	4		
Bergen,	1		
Christiania,	3	100 pks.	
Copenhagen,	11		
Drontheim,	10	186 dms.	
Dunkirk,	2		
Danzig,	2		
Gothenburg,	1		
Hamburg,	1	25	
Helsingfors,	1		
New York,	150		
Odessa,	118		
Palermo,		25 pks.	
Rotterdam,	1		
Riga,	50		
Stockholm,	2		
St. Petersburg,	118		
Stettin,	16		
Trieste,	4		
Venice,	8		

Pitch—

Antwerp,	408 t.
Catania,	10
Helsingfors,	54 cks.
Odessa,	100

Size—

Flushing,	20 cks.
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Soap—

Christiania,	1 cs.
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Soda Crystals—

Bjorneborg,	20 cks.
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Tallow—

Gothenburg,	10 cks.
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Tar—

Amsterdam,	12 cks.
Bjorneborg,	40
Bremen,	30
Hamburg,	11
Helsingfors,	70
Stockholm,	2

Varnish—

Antwerp,	2 cs.	1 ck.
Amsterdam,		5
Christiania,		2 dms.
Copenhagen,		
Gothenburg,	2	
Hamburg,		3
Riga,	34	1
Stettin,		2

GLASGOW.

Week ending August 17th.

Acids—

Rangoon,		£54
Bombay,	371 t.	2,400

Ammonium Sulphate—

Bordeaux,	121 t.	£1,200
Charente,	96 17½ c.	1,261
Rouen,	20 1½	270
Hamburg,	456 bgs.	630

Bleaching Powder—

Dunedin,	2 t. 19 c.	£28
Sydney,	3	£28. 10s.
Bombay,	2 6½	£25

Boracic Acid—

N. Zealand,	10 c.	£20
Japan,	3 t. 10	£30

Borax—

N. Zealand,	15 c.	£23
Quebec,	1 t. 6¾	40
Hamburg,	23 cks.	193
Japan,	2 19½	88

Caoutchouc—

Christiania,	69 lbs.	£6
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Carbolic Acid—

Bombay,	300 glns.	£20
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Castor Oil—

Sydney,	225 glns.	£55
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Chemicals (otherwise undescribed)

Hamburg,	3 cks.	£60
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Chloroform—

Bombay,	2 c.	£24
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Coal Products—

Creosote		
Bordeaux,	307 t.	£460

Creosote Oil

Christiania,	20 bls.	£10
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Naphtha

Rouen,	27 t. 18½ c.	£435
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Pitch

New York,	430 t. 17 c.	£644
Quebec,	50 15	65
Christiania,	5	8
Gothenburg,	79 14¾	200

Tar

Quebec,	49 t. 9 c.	£65
Hamburg,	200 cks.	75
Bombay,	100 mls.	29
Christiania,	20 bls.	9
Riga,	250	110

Coal Products (otherwise undes.)

Hamburg,		£59
Christiania,	1 t. 4 c.	16
Rotterdam,	16 dms.	195

Dyestuffs—

Extracts		
Montreal,	9 t. 5¾ c.	£240
Quebec,	1 11¾	63

Fustic Extract

Montreal,	2 t. 7 c.	£93
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Logwood

Montreal,	8 t. 6¾ c.	£156
Dunedin,	15 11¾	175
Auckland,	2 1½	24

Dyestuffs (otherwise undescribed)

Bombay,	1½ c.	£16
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Farina—

Antwerp,	18¾ c.	£14
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Glucose—

Bombay,	6 t. 14 c.	£120
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Linseed Oil—

Montreal,	12 t. 18 c.	£267
Chili,	1 ¾	28
Dunedin,	12 19¾	301
Auckland,	4 2½	82
Quebec,	8 10½	203
Sydney,	2 7¾	£49. 10s.

Litharge—

Montreal,	18 t. 9 c.	£218
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Manganese—

Hamburg,	2 t.	£24
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Manganese Oxide—

New York,	14 t. 18 c.	£150
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Muriatic Acid—

Bombay,	7 t. ¾ c.	£33
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Nitrate of Lead—

Montreal,	5 t. 6 c.	£90
Rouen,	5 4½	100

Ochre—

Calcutta,	5 t. 4¾ c.	£40
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Paint—

New York,	2 t. 19¾ c.	£33. 15s.
Peru,	3 11¾	50
Rangoon,	6 9	94
Bombay,	4 4	28
Rotterdam,		4 dms. 3 12
Sydney,		103
Calcutta,		227
Singapore,	1 19	29
Shanghai,		121

Painters' Colours—

Dunedin,		£126
Auckland,		151
Bombay,		145

Paraffin Wax—

Peru,	1 t. 17 c.	£56
Dunedin,	7 2½	200
Bilbao,	1	35
Rouen,	10¾	20
Constantinople,	5 ½	130
Christiania,	5	130
Riga,	20 bgs.	39
Hamburg,	30 cs.	70

Potassium Bichromate—

Montreal,	5 t. 9 c.	£216
Dunedin,		15
Antwerp,	9 10½	368
Bombay,	10¾	23
Rouen,	31 10½	1 048
Japan,	6 10½	260
Constantinople,	1 3	45

Potassium Prussiate—

New York,	9 t. ¾ c.	£820
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Sheep Dip—

Chili,	6 t. 14 c.	£216
Dunedin,		360
Auckland,	2 3	60

Soap—

New York,	1 t. 10¾ c.	£23
Dunedin,		20
Bombay,	1 16¾	22

Soda—

Bombay,	12 t. 10 c.	£72
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Soda Ash—

New York,	20 t. 6¾ c.	£86
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Sodium Bichromate—

Antwerp,	5 t. 15½ c.	£182
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Sulphuric Acid—

Rangoon,	64 t. 17¾ c.	£406
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Tallow—

Christiania,	1 c.	£3
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Tartar—

Dunedin,	11 c.	£40
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White Lead—

Dunedin,	2 t.	£43
Auckland,	3 12¾ c.	71
Sydney,	10 19	224
Calcutta,	5	67

TYNE.

Week ending August 12th.

Alkali—

Amsterdam,	36 t. 18 c.	
Copenhagen,	2 3	
Gothenburg,	4 17	

Ammonium Carbonate—

Montreal,	1 t.	
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Ammonium Sulphate—

Hamburg,	15 t.	
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Antimony—

Hamburg,	1 t.	
Montreal,	2	
Rotterdam,	2	

Barium Carbonate—

Hamburg,	100 t.	
St. Petersburg,	20	
Rotterdam,	100	

Bleaching Powder—

Amsterdam,	30 t. 18 c.	
Bilbao,	5 10	
Antwerp,	35 13	
Montreal,	58 14	
Christiania,	1 4	
Genoa,	11 4	
St. Petersburg,	162 6	
Rotterdam,	7	
Copenhagen,	46 6	
Fairwater,	40	

Castor Oil—

Bergen,	1 t. 15 c.	
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Caustic Soda—

Amsterdam,	1 t.	10 c.
Antwerp.	11	2

PRICES CURRENT.

WEDNESDAY, AUGUST 23rd, 1893.

PREPARED BY MESSRS. HIGGINBOTTOM AND CO., 116, PORTLAND STREET, MANCHESTER.

The values stated are F.O.R. at maker's works, or at usual ports of shipment in U.K. The price in different localities may vary.

Acids:—				£	s.	d.					£	s.	d.
Acetic, 25 % and 40 %	per cwt.	7/-	10	6	Lime, Acetate (brown)	per ton	5	17	6				
Glacial	"	0	14	6	" (grey)	"	10	0	0				
Arsenic S.G., 2000°	"	0	14	6	Magnesium (ribbon and wire)	per oz.	0	2	3				
Fluoric	per lb.	0	0	3 1/4	" Chloride (ex ship)	per ton	2	7	6				
Muriatic (Tower Salts), 30° Tw.	per bottle	0	0	10	" Carbonate	per cwt.	1	17	6				
(Cylinder), 30° Tw.	"	0	3	0	" Hydrate	per ton.	17	0	0				
Nitric 80° Tw.	per lb.	0	0	1 1/4	" Sulphate (Epsom Salts)	per ton	2	19	0				
Nitrous	"	0	0	1 1/4	Manganese, Sulphate	"	17	15	0				
Oxalic	nett	0	0	3	" Borate	per cwt.	2	12	6				
Phosphoric, 1750°	"	0	1	2 1/2	" Ore, 70 %	per ton	4	5	0				
Picric	"	0	1	0	Methylated Spirit, 61° O.P.	per gallon	0	2	0				
Sulphuric (fuming 50 %)	per ton	15	10	0	Naphtha (Wood), Solvent	"	c	3	6				
" (monohydrate)	"	5	10	0	" Miscible, 60° O.P.	"	0	4	0				
" (Pyrites, 168°)	"	3	0	0	Oils:—								
" " 150°	"	1	5	0	Cotton-seed	per ton	23	10	0				
" (free from arsenic, 145°)	"	1	6	0	Linseed	"	23	0	0				
Sulphurous (solution) S.G. 1025	"	3	0	0	Lubricating, Scotch, 890°—895°	"	7	5	0				
Tannic (pure)	per lb.	0	1	2	Petroleum, Russian	per gallon	0	0	4				
Tartaric	"	0	0	11 1/2	" American	"	0	0	5 1/2				
Arsenic, white powdered	nett	per ton	13	15	0	Potassium (metal)	per oz.	0	3	7			
Alum (loose lump)	"	5	2	6	" Bichromate	per lb.	0	0	4 1/2				
Alumina Sulphate (pure)	"	5	0	0	" Carbonate, 90% (ex ship)	per ton	16	15	0				
Aluminoferic	"	2	10	0	" Chlorate	per lb.	0	0	8				
Aluminium	per lb.	0	4	0	" Cyanide, 98%	"	0	2	0				
Ammonia, Anhydrous	"	0	1	1	" Hydrate (Caustic Potash) 80/85 %	per ton	21	10	0				
" 880=28°	per lb.	0	0	3 1/4	" " (Caustic Potash) 75/80 %	"	20	10	0				
" =24°	nett	0	0	2	" " (Caustic Potash) 70/75 %	"	20	0	0				
" Carbonate	nett	0	0	3 1/2	" Nitrate (refined)	per cwt.	1	2	6				
" Muriate	per ton	22	10	0	" Permanganate	per cwt.	3	5	0				
" (sal-ammoniac) 1st & 2nd	per cwt.	37/-	35/-		" Prussiate Yellow	per lb.	0	0	9				
" Nitrate	per ton	42	0	0	" Sulphate, 90 % (ex ship)	per ton	9	15	0				
" Phosphate	per lb.	0	0	10 1/2	" Muriate, 80 % (do.)	"	8	0	0				
" Sulphate (grey) London	per ton	14	17	6	Silver (metal)	per oz.	0	2	10 1/2				
" (grey) Hull	"	14	17	6	" Nitrate	"	0	2	10				
Aniline Oil (pure)	per lb.	0	0	6	Sodium (metal)	per lb.	0	3	4				
Aniline Salt	"	0	0	5 1/2	" Carb. (refined Soda-ash) 48 %	per ton	5	10	0				
Antimony	per ton	45	10	0	" " (Caustic Soda-ash) 48 %	"	4	10	0				
" (tartar emetic)	per lb.	0	1	0	" " (Carb. Soda-ash) 48 %	"	4	10	0				
" (golden sulphide)	"	0	0	10	" " (Carb. Soda-ash) 58 %	"	4	10	0				
Barium Chloride	per ton	7	10	0	" (Soda Crystals)	"	2	17	6				
" Carbonate (native)	"	3	10	0	" Acetate (ex-ship)	"	16	0	0				
" Sulphate (native levigated)	"	45/-	to 75/-		" Arseniate, 45 %	"	12	0	0				
Bleaching Powder, 35 %	nett	8	10	0	" Chlorate	per lb.	0	0	9				
" Liquor, 7 %	"	3	10	0	" Borate (Borax)	net, per ton.	29	0	0				
Bisulphide of Carbon	"	11	15	0	" Bichromate	per lb.	0	0	3 1/2				
Chromium Acetate (crystal)	per lb.	0	0	6	" Hydrate (77 % Caustic Soda)(f.o.b.)	net pr. ton	11	10	0				
Calcium Chloride	per ton	2	5	0	" " (74 % Caustic Soda)	"	11	0	0				
China Clay (at Runcorn) in bulk	"	17/6	to 35/-		" " (70 % Caustic Soda)	"	10	0	0				
Coal Tar Products and Dyes:—					" " (60 % Caustic Soda)	"	9	0	0				
Alizarine (artificial) 20 %	net	per lb.	0	0	8	" " (60 % Caustic Soda, cream) (f.o.b.)	"	8	15	0			
Magenta	"	0	3	9	" Bicarbonate	"	6	10	0				
Anthracene, 30 % A, f.o.b. London	per unit	per cwt.	0	1	2	" Hyposulphite	"	6	10	0			
Benzol, 90 % nominal	"	per gallon	0	1	5	" Manganate, 30%	"	16	0	0			
" 50/90	"	"	0	1	5	" Nitrate (95 %) ex-ship Liverpool	per cwt.	0	9	9			
Carbolic Acid (crystallised 40°)	per lb.	0	0	6 1/4	" Nitrite, 98 %	per ton	29	0	0				
" (crude 60°)	per gallon	0	1	7	" Phosphate	"	15	0	0				
Creosote (ordinary)	"	0	0	1	" Prussiate	per lb.	0	0	7				
" (filtered for Lucigen light)	"	0	0	1 1/4	" Silicate (glass)	per ton	5	7	6 1/4				
Crude Naphtha 30 % @ 120° C.	"	0	0	7	" " (liquid, 100° Tw.)	"	4	5	0				
Grease Oils, 22° Tw.	per ton	2	5	0	" Stannate, 40 %	per cwt.	3	0	0				
Pitch, f.o.b. Liverpool or Garston	"	1	5	0	" Sulphate (Salt-cake)	per ton.	1	4	0				
Solvent Naphtha, 90 % at 160°	per gallon	0	0	11	" (Glauber's Salts)	"	1	10	0				
" Lucigen" and "Wells Oils	"	0	0	1 1/4	" Sulphide	"	8	10	0				
Copper	per ton	41	1	3	" Sulphite	"	5	15	0				
" Sulphate	"	15	10	0	Strontium Hydrate, 100%	"	8	10	0				
" Oxide (copper scales)	"	40	0	0	Sulphocyanide Ammonium, 95 %	per lb.	0	0	7				
Glycerine (crude)	"	13	0	0	" Barium, 95 %	"	0	0	5 1/4				
" (distilled S.G. 1250°)	"	43	0	0	" Potassium	"	0	0	7				
Iodine	nett, per oz.	0	0	9	Sulphur (Flowers)	per ton.	8	0	0				
Iron Sulphate (copperas)	per ton	1	12	6	" (Roll Brimstone)	"	6	10	0				
" Sulphide (antimony slag)	"	2	0	0	" Brimstone: Best Quality	"	4	2	6				
Lead (sheet) for cash	"	11	2	6	Superphosphate of Lime (26 %)	"	2	7	6				
" Litharge Flake (ex ship)	"	13	0	0	Tallow	"	27	10	0				
" Acetate (white ")	"	25	15	0	Tin (English Ingots)	"	83	0	0				
" brown ")	"	17	10	0	" Crystals	per lb.	0	0	6				
" Carbonate: (white lead) pure	"	20	0	0	Zinc (Spelter)	per ton	17	5	0				
" Nitrate	"	20	0	0	" Chloride (solution, 96° Tw.)	"	5	15	0				

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Notices.

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CURRENT TOPICS.

THE HEALTH OF CHEMICAL WORKERS.

THE possibility of improving the conditions under which chemical operatives work having been discussed pretty freely in this country last March, seems to have been productive of a somewhat similar movement on the Continent. The French manufacturers are offering a prize of about twenty-five pounds sterling, to induce some one to invent a muzzle, or mask, to protect those working in dusty or noxious atmospheres. The conditions which the invention has to fulfil are set forth in another column. They seem comprehensive and satisfactory, but we venture to think that if our manufacturers at home were asked to give an opinion on the matter they could tell this well-meaning society of French manufacturers "a thing or two."

Maybe the antipathy to ridicule is not so deeply ingrained in the French as in British workmen, but for all that we venture to predict that the former will in some things be as inflexible as the proverbial horse who is taken to water—they will decline to drink. What success will attend the efforts of the manufacturers of France remains to be seen, but it can hardly follow on account of the invention satisfying a need, since there are not wanting muzzles to compass the exigencies of those engaged in white lead, glass, cutlery, chemical, and other works—such already exist. The need rather is for some idea to overcome the callousness of the operatives, and to persuade them that nothing worth having can be gained without some trouble; so that if they desire good health they must not begrudge the slight effort or inconvenience which the wearing of an effective protector entails. From our own experience, therefore, we should say it would be highly conducive to success if a fifth proviso was added to the conditions specified by the French manufacturers, to the effect that the mask must be made sufficiently ornamental, or possess some attractive feature, to induce operatives to use it. Say, for instance, that every twelfth mask will be fitted with an ozone generator, so that the lucky possessor will, despite his surroundings, inhale an atmosphere which smacks of the "briney," so that it will only want a stereoscopic view of the Isle of Man or Cannes to make him think he is enjoying a perpetual seaside holiday. At anyrate, if the prize produces a mask which will "catch on" there are plenty who will be willing to applaud, and apply the means by which our French fellow-manufacturers attain success and prevail over prejudice.

THREE DOCTORS V. TWELVE JURYMEN.

The question of whether the fumes of modern explosives are more poisonous than those of the old-fashioned blasting powder was raised again this week at Wigan. The death of a miner was attributed to inhaling gases given off from the firing of two shots of carbonite, his son being the principal witness as to the evil effects which the fumes had on his father. As the fireman who saw to the brattices after firing

the shots gave in his evidence the "lie direct" to the statements of the son, one cannot help thinking that somebody was guilty of perjury. From the decision of the Coroner's jury it would seem that they were of opinion that this charge could not be entertained against the witnesses on behalf of the deceased (though, of course, we may be labouring under a misconception), for their verdict leaned towards the testimony of these witnesses, in opposition to the statements of the three doctors who attended the deceased, and one of Her Majesty's Mine Inspectors, who was familiar with the explosive in use.

The doctors said death was due to pleurisy, and in no way connected with the inhalation of the carbonite fumes. The jury, however, though death resulted more than six weeks after the deceased was subjected to the fumes, found a connecting link, which no doubt had been overlooked, and so they had their way. After all, the odds were long, four to one in their favour.

MORE ABOUT EXPLOSIVES.

Apropos of the foregoing, there has been no little talk just lately about the manufacture of Cordite. The situation is certainly very interesting. Despite the peculiarly peculiar, and seemingly pertinent questions which have been asked in Parliament with such temerity during the past few weeks, the matter can hardly be said to be properly focussed, if pre-judgment is faithfully abstained from, as it ought to be. Still, the proposal to set apart a day next week for dealing with this individual question, should place such a complexion on the matter as to enable a fair estimate of the *pros* and *cons* of the case to be made. We know that Government arrangements now and then have a knack of running conveniently inconvenient, but we hope in this instance they will prove favourable to the carrying out of the afore-mentioned suggestion, as otherwise it will be hard to suppress the supposition that the questions and statements afloat concerning Cordite are merited, since *qui ne dit mot consent*.

MANURING SUGAR BEETS.

THE manufacturers of sugar, from sugar beet in Germany, at their recent congress, had before them the report of Dr. Hellriegel, of the Bernburg Agricultural Station, on the manurial requirements of the sugar beet. This report was published in the *Sucrerie Belge*, and contained an account of a number of interesting experiments, of which we have prepared the following summary:—

Dr. Hellriegel, taking as his starting point the principle that the aim of the agricultural chemist is to determine for each plant the minimum quantity of each fertilizing material which is necessary for its normal vegetation, has made a series of experiments on sugar beets grown in a specially prepared soil, each beet being kept separate, and given as much soil it would generally have when grown in a field, while the conditions of growth, moisture, &c., were kept as close as possible to those prevailing on the large scale. It was found in the sterilised soil employed that beets could not be grown, though they were free from disease of any kind. Healthy and normal beets, however, were obtained when a sufficiency of lime, magnesia, and sulphuric acid was added to the soil, and also a mixture of 2'940 grams of nitrate, 2'840 grains of phosphoric acid soluble in water, and 6'594 grams of potash (as phosphate or chloride) per head of beet. The beetroots thus obtained developed normally, and attained a total weight of 813 grams.

Experiments were then made diminishing gradually and successively the three last-named elements. Naturally the plants in time began to deteriorate, and it was found that the plants suffered quicker when the nitrogen was reduced than when potash and phosphoric acid were wanting. The falling off in the case of the two latter being about equal, while a lack of these ingredients causes the plants to be poor. An excess does not do much good either, the experiments recorded for each element showing that at a certain point, about midway between what was found to be an excess, and what was too little, the most satisfactory results were obtained.

The deduction which follows from an examination of the tabulated

results of the experiments is that, to obtain a normal beet of about 800 grams weight, there are required:—

2'9	grams of nitrogen.
1'2	,, phosphoric acid.
1'7	,, potash.

It will be seen that these results differ much from what is actually done in practice, but it must be borne in mind that when manure is applied on a large scale, one does not have to supply *all* the fertilising materials the plant requires, but only such ingredients as the soil is short of. Consequently, as soils are usually poorer in phosphoric acid than nitrogen and potash, it often happens that the addition of a phosphatic manure is found to produce excellent results. It may be added, however, that of late years the addition of phosphoric acid has been carried to excess in the opposite direction, too much being added instead of too little. We now come to the individual action of each of these three principal fertilising agents upon the beet.

When the nitrogen is diminished (or what amounts to the same thing, when the soil is deficient in available nitrogen), the yield and also the quantity of leaves is reduced, but the proportion of roots to leaves, and the percentage of sugar is not altered.

If potash is wanting there is also a diminution in the yield, but in less degree than with nitrogen. The quantity of leaves is not sensibly effected, but the roots suffer considerably in weight and percentage of sugar. These observations are accounted for because the first material formed in the plant is plasma, which is composed of a chemical compound containing much nitrogen. Without nitrogen, therefore, there could be no formation of the plant. If the plant has not enough nitrogen at its disposal, it uses it all up to form plasma cells, and leaves, and then it is obliged for want of nitrogen to stop developing further. It does not die on that account, but the final result will be a small but otherwise normal plant the root of which will be rich in sugar—the ideal of the manufacturer.

If, on the other hand, one places too much nitrogen at the disposal of the plant, it will most probably produce more plasma than can be properly utilized during the customary time of vegetation, and the result will be a beetroot rich in leaves and water, but not in sugar. If a very large excess of nitrogen is given, the plant will not be able to convert it into plasma and it will pass unchanged into the juice, and nitrous beets will be obtained.

The action of potash in the plant is but little known. A plant containing no potash would be able to germinate, but not develop, as it could not form any starch.

If a beetroot is given an insufficient quantity of potash, but plenty of the other fertilizers, it will form plasma in abundance but no starch, which ought to be formed to assist in the development of the roots, &c., to be ultimately converted into sugar. This phenomenon has yet to be explained, as potash does not enter into the composition of starch, and yet none is formed unless the former is present in sufficient quantity. Should there be an excess of potash, however, little harm can be done, as it can pass into the juice and help to increase the percentage of salts obtained in the sugar manufacturing process.

The action of phosphoric acid is anything but clearly indicated by Dr. Hellriegel's experiments. It is undoubtedly necessary to the growth of the plant, but the investigator prefers to wait till he has made further experiments before he makes any definite statements.

From the experiments made it seems, therefore, that in order to obtain 100,000 beets per hectare, in normal condition, weighing about 800 grams and containing say 14% of sugar, it is necessary for the soil to contain, in a state ready for assimilation:—

Nitrogen	292 kilogrs.
Phosphoric acid	120 „
Potash	172 „

which is equivalent to about the following quantities of suitable fertilizers:—

Sodium nitrate	1,800 kilogrs.
Superphosphate (20%)	600 „
Kainit	1,400 „

It is, however, evident at once that it would be absurd to give such large quantities of fertilizers to the soil, which, in all probability, contains a considerable quantity of the necessary ingredients. It therefore becomes necessary to estimate these quantities. It is true that the analysis of soils, apart from the estimation of lime, iron, and phosphoric acid, and the like, is in an unsatisfactory state, but this deficiency can in a large measure be overcome by analysing the plants, and noticing what they are deficient in. From a number of experiments which have been made in the past, it would seem that a beetroot contains usually:—

Nitrogen about	0'9 %
Phosphoric acid about	0'3 „
Potash about	0'4 „

An instance of how an analysis of the beet can indicate how the crop can best be manured is shown in the following case, which occurred in

ractical farming. There were two crops in two different fields, crop as follows :—

	A	B
Yield of beets per hectare...	30,000 kilos.	42,000 kilos.
Richness in sugar.....	17 %	14 %

Age of the analyses of the entire beetroot gave the following

	A	B
Nitrogen	0.8 %	1.5 %
Phosphoric acid	0.4 %	0.6 %
Potash	1.0 %	0.6 %

Use of A potash is the only element in excess of the needs of the crop, and consequently the percentage of sugar is according to the deductions high and the crop low. By adding to the soil a rich in nitrogen and phosphoric acid one might naturally hope to use the yield without detracting from the quality of the beet. Use of B (where the crop is large but poor in sugar) there is too much nitrogen and an insufficiency of potash and phosphoric acid. By adding these there is every reason to expect that the yield of sugar would be augmented without reducing the yield of the beet. However, in order to extend our knowledge and verify these deductions, it is necessary that experiments should be prosecuted for some years yet, so that a fuller grasp of the subject can be obtained.

THE SALT INDUSTRY OF ASTRAKHAN.

The following is a special report issued by the Foreign Office on the salt industry of Astrakhan, the report having been made by the Consul at Taganrog.

The Trans-Volga Steppes in the province of Astrakhan, form an extensive salt basin, composed of the largest known salt lakes, Elton Baskunchak, a whole group of the so-called South Astrakhan salt lakes and large beds of rock-salt in the Chapchachi Hill. At present salt is extracted only from the Baskunchak and South Astrakhan. One great element in the development of the industry was the want of steam communication on the Volga and the consequent increase of the cost of transport. During 116 years (1747-1862) the salt was worked by the Government, but from 1866 to 1882 it was in the hands of private individuals. The Elton lake is one of the largest salt lakes known to exist, and covers an area of 135 square miles. The thickness of the salt bed is unknown. As far back as 1862 attempts were made to dig a well, but the work had to be abandoned at the depth of 14ft. owing to the hardness of the salt and the fact which prevented the labourers from stopping down more than a few feet at a time. The salt was worked by primitive means, the tools used being crowbars, pickaxes, and spades, and it was transported to the shore on specially constructed rafts carrying from 100 to 200 tons. The principal drawback to the development of the industry was the great expense of transporting the salt to the landing places. Grialkin and Nicolaevsk on the Volga. Operations on the Baskunchak lake were first begun in the middle of the last century, but the output was very limited, and, owing to the serious competition of the Elton salt, it dropped off altogether. It was only in 1867 that a new era was made. Statistics show that since then the output has increased very rapidly and without any serious fluctuations, which is due to the fact that the production has not been fostered by artificial measures, but simply followed the increased demand for salt. The Baskunchak lake has an area of 66 square miles. Surveys made in 1883 prove that the lake is from 20ft. to 28ft. deep. The mode of extraction is that practised at Elton lake. Blasting with dynamite was first used in 1877, but it is very rarely resorted to. The cost of production up to the time of the closing of the Elton establishments was 1s. 6d. per poond, whereas from Baskunchak it was only 1s. 4d. per poond. The salt industry of the South Astrakhan lakes is chiefly concentrated in the south-west of Astrakhan, in the neighbourhood of the villages of Liteinaya, and Bassova. Here there are altogether 70 lakes, more than half of which are being worked. The output, as compared with Elton and Baskunchak, is insignificant, and it is remarked that if the production be pushed too much the quality of the salt immediately deteriorates both in quality and quantity. This is due to the fact that in working the evaporated salt all the bitter salts are washed out by the brine and thus returned to the Chapchachi Hill is a solid mass of rock-salt; it is about 53 miles south of the Baskunchak lake and 57 miles east of the Chapchachi Hill. The hill is only about 90ft. high; its length is about two miles and breadth 4,900ft. According to surveys the salt strata are 10ft. thick, but the total quantity of salt has not yet been determined.

THE GAS SUPPLY OF LONDON.

THE quality of the gas supplied to the City of London for the week ending August 19th, 1893, was good. According to the report of Mr. W. J. Dibdin, chemist and superintendent gas examiner to the London County Council, the tests made at the various testing stations showed no deficiencies in illuminating power. The following figures have been prepared from the report, and show the average composition of the gas calculated on the mean test :—

Company.	No. of districts tested.	Illuminating power (in stand. sperm candles).	Sulphur. Grains in 100 cb. ft.	Ammonia. Grains in 100 cb. ft.	Sulphuretted hydrogen.
		Mean average.	Mean average.	Mean average.	
Gas Light and Coke Co.	14	16.44	9.54	0.40	Nil.
South Metropolitan Gas Co.	6	16.73	9.95	0.76	Nil.
Commercial Gas Co.	2	16.40	8.45	1.30	Nil.

The standard gas supplied by these companies should have an illuminating power of 16 sperm candles, and contain not more than 22 grains of sulphur and 4 grains of ammonia per 100 cub. ft. of gas, on an average of three days, with a pressure of one inch between sunset and midnight, and six-tenths of an inch between midnight and sunset.

EXPORTS OF ALKALI AND BLEACH.

THE following figures, which are taken from the official foreign and colonial statistics of the United Kingdom, give the amount and value of alkali and bleaching materials shipped to the undermentioned countries during the month of June, 1893, as compared with the same month in 1892 :—

ALKALI.

Port.	1892.	1893.	1892.	1893.
	Cwts.	Cwts.	£	£
Russia	23,448	43,489	11,070	17,706
Sweden and Norway	6,729	12,053	2,277	2,853
Germany	6,257	13,260	2,898	4,461
Holland	5,684	9,461	1,914	2,445
France	4,106	3,231	1,678	1,263
Spain and Canaries	42,838	30,297	20,150	13,832
Italy	14,442	20,382	6,709	8,353
United States	197,048	206,537	70,962	61,326
Australasia	10,958	12,417	3,805	3,832
British North America ..	22,914	21,284	7,853	6,433
Other countries	56,001	78,960	21,640	28,893
Total	390,425	451,371	150,956	151,397

BLEACHING POWDER, ETC.

Port.	1892.	1893.	1892.	1893.
	Cwt.	Cwt.	£	£
United States	59,778	100,856	24,502	43,048
Other countries	38,640	53,578	14,865	22,526
Total	98,418	154,434	39,367	65,574

WORKING MEN AND THEIR HOLIDAYS.—A curious letter was read at the last meeting of the Rotherham Board of Guardians, on Monday, 28th ult. Messrs. Yates, Heywood, and Co., who have certain works in hand in connection with the erection of a new workhouse for the Board, wrote to excuse themselves for delay in completing their contract. "These are not days," they said, "when we can put pressure upon our workmen. They have no duties or obligations to anybody but themselves or their trade-unions. Last Saturday our workmen took their annual trip, and notwithstanding that we did our utmost to prevail upon the men who were at work on the bailing pans for your workhouse to forego their holiday, they declined to do so, and they have not only taken a holiday on the day of their trip, but are at the present time rusticated at the seaside. No amount of inconvenience to which they could put others of their own class would influence their movements. You are aware that in these days workmen will not do the work of the absent, and we can therefore put no others in their place."

The World's Columbian Exposition.

ENGLISH INDUSTRIES AT CHICAGO.

(Specially Communicated.)

MESSRS. DOULTON AND COMPANY.

The exhibits of Messrs. Doulton and Co., at Chicago, include a large and varied collection of Art wares, housed in a magnificent pavilion, near the centre of the Manufactures and Liberal Arts building, and they form an important feature in the British section.

of stoneware taps, ranging in bore from half an inch to four inches, latter being very fine specimens of this class of ware. Adjoining is displayed a stoneware acid force pump (2), which as a specimen of potting is especially interesting. These pumps are capable of resisting a pressure of 30 lbs. or more per square inch, and the parts interchangeable can be readily replaced if required.

The electrical appliances include telegraphic insulators, lead tubes for conveying electric wires through walls, patent insulators for bare copper electric light mains, and a patent stoneware conduit for underground electric cables.

There are also many specimens of Doulton's Patent Man Carbon Filters in plain and ornamental stoneware. Several



(1)

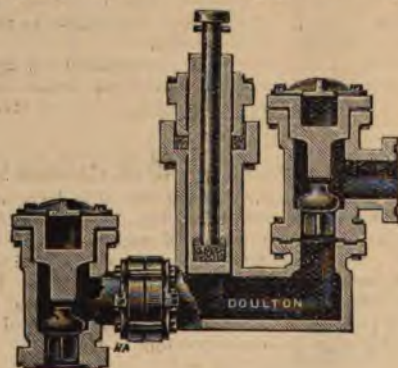
The pavilion consists of a central vestibule opening into two annexes, in which are respectively displayed the productions of the Lambeth Art Pottery, and those of Burslem, Staffordshire. These exhibits contain every conceivable variety of Art ware, specimens of which are shown in the accompanying illustrations (3 and 5), and in range of production are altogether unsurpassed.

At a short distance from this pavilion is a separate stand with a display of

CHEMICAL APPARATUS,

including crucibles, electrical appliances, kitchen sinks, filters, and domestic stoneware.

Among many important and interesting specimens may be mentioned



(2)

a stoneware mixing or storing pan of 275 gns. capacity; a fine water-lute store jar holding 120 gns; and a varied collection of bellied and upright Woulff's bottles of large dimensions as illustrated (1), arranged and fitted up for the several processes in which they are used. There is also a collection of acid towers, together with a very complete set

forms of these are exhibited, such as those for table use, as shown in the illustration (4), and for use in ships, &c.; also high pressure cistern filters, rain water and pump filters.

Plumbago crucibles may specially be noted, the capacity of ranging up to 1,000 lbs. Every variety of crucible required for metallurgical



(3)

purposes is provided, including pots for fluxes, zinc, antimony, and copper, as well as for jewellers' work in silver and gold.

In fire-clay goods there is a selection of round and triangular crucibles, "skittle" pots, poelons, scorifiers, and muffles for annealing and enamellers.

to justice to the exhibits of this firm we must, however, briefly draw attention again to the artistic section. The perfection of pottery has been carried by Messrs. Doulton and Co. is too well to necessitate our enlarging upon this point, but in this case two specimens of their work are displayed of which we should like to have some idea. These specimens are two huge vases described respectively as the "History of England Vase," and "Doulton Ware Ewer." The former is 4ft. 4in. high, of massive



(4)

ions, the form presumably having been suggested by the large Grès dres tankards of the seventeenth century. Round the widest part of the body there are a succession of twenty niches, containing groups representing leading incidents in English history, while above the neck there is another series of twenty single figures representing different monarchs from Caractacus down to George I. Doulton Ewer is a magnificent piece of work. The total height is 4ft. 4in., being, as far as is known, the largest piece of ornamental ware made in stoneware. The piece, which was designed and entirely worked by Mr. Mark V. Marshall, is novel in design



(5)

treatment, and of beautiful and slender proportions. The colour is light, except for a strong band of bluish-green at the base, and touches of dark blues and browns in the ornament. The necessary effect is obtained as much in the modelling as in the colour. Round the shoulder is a vigorously modelled band of ornamental scrolls and groups of horses' heads. This is perforated, and forms a kind of lattice. Perforated bosses are set in the ornament, and the crisp modelling of the upper part and handle, all supply valuable touches of light. Portions of the modelling are left uncoloured, and the light brown semi-glazed surface so characteristic of the best stoneware.

ECULIAR GLASS.—A new glass, which is nearly impervious to rays, is described in Dingle's *Polytechnic Journal*. It consists of $\frac{1}{8}$ in. thick only allowing about 11 or 12 per cent. of the light to pass from a bat's wing burner to pass. The glass is made from 50 of sand, 34 of soda, and 25 of china clay.

Official Memoranda.

(From the Board of Trade Journal.)

THE NEW INDIA-RUBBER TREE IN MADAGASCAR.

The *Journal des Mines* states that the trade of the Island of Madagascar in 1892 received a decided stimulus by the discovery of a new india-rubber tree. The principal centres where this new product is treated are Farafangana, Vangaindrano, Manaimbondro, Fort Dauphin, Andrahomby, and Cape St. Mary.

At first the new product realised from 3 to 6 piastres per 100 lbs.; aided by competition the purchase price very soon amounted to 10 and then to 15 piastres. More than 20 piastres per 100 lbs. is now paid at Fort Dauphin.

The discovery of the new india-rubber tree has come very fortunately to relieve the Madagascar market, which was at such a low ebb that the Tamatave houses were closing their agencies on the north-east coast and the Americans suppressed their Majunga houses.

This discovery is of very great importance; it almost constitutes a commercial revolution. The trade formerly carried on between Farafangana and Fort Dauphin was confined to a few products which were obtained only in small quantities. Merchants were almost completely disheartened and had abandoned the market to small traders.

Several of the latter possessed but a few hundred piastres at the end of from 15 to 20 years of hard work. At the present day they are all relatively rich, and it has only taken them a year to gain their thousands of piastres. At the time of the india-rubber fever new houses were immediately established at Farafangana, Vangaindra, Manaimbondro, Andrahomby, Fort Dauphin, and also at Cape St. Mary, bringing goods and money.

The natives, receiving large sums in return for their products, took upon themselves to purchase imported goods to a very large extent. As long as the working of the new rubber tree lasts, this state of things will continue. The probable duration of this working is estimated at two years only.

THE MANUFACTURE OF BUTTER SUBSTITUTES IN RUSSIA.

According to a Russian paper there will shortly be published a new regulation prepared by the department of trade and manufactures respecting the manufacture of margarine and artificial butter.

This regulation touches not only the methods and conditions of production of the margarine, but also the control of the sale of this butter substitute. Control will be exercised through the aid of special inspectors, who have received superior technical or medical instruction. This duty will consist in visiting these establishments and making an analysis of the products. In the event of an infringement of the regulations, they will be authorised to impose a fine on the offenders and also to enforce the closing of such works.

In establishments engaged in the margarine and artificial butter trade, the sale of all products of cream butter will be prohibited. The establishment of margarine factories will only be authorised in cases where it is shown that they may be supplied with fresh meat fat coming from slaughter houses, placed under the direct superintendence of the veterinary department. Further, the slaughter-houses can only send to the factories the fat of cattle slaughtered the same day.

MINERAL PRODUCTION IN THE CAUCASUS IN 1892.

The French *Journal de Mines* gives the following particulars of mining production of the Caucasus in 1892:—

103,559 pounds of copper (pound = 36 lbs. avoirdupois) 23,700 pounds of sulphur, 1,036,793 pounds of coal, 10,314,394 pounds of manganese ores, 1,535,715 pounds of rock salt, 612,393 pounds of lake salt, and 30,000 pounds of glauber salt.

NICKEL PRODUCTION IN NEW CALEDONIA.

The Belgian Consul at Noumea reports that large areas in New Caledonia are now being worked for nickel. The composition of the nickel ore is hydrated silicate of nickel and magnesia, without any trace of arsenic. It contains 8 to 10 per cent of the metal and samples have been found containing as much as 16 per cent. The average value of the ore delivered at the port of shipment is about 100 francs per ton. New Caledonia exported in 1890, 5,000 tons of nickel ore, 1,500 tons of chromate of iron, and 700 tons of cobalt.

PROTECTING INDUSTRIAL OPERATIVES IN FRANCE.

The *Progrès Economique* states that the society of French manufacturers for the prevention of accidents in industry has organised a public competition for the construction of a good type of mask (masque respirateur) against noxious dusts (resulting from industrial processes).

It must fulfil the following conditions:—(1) Efficacious protection of the mouth and nose of the workman against the absorption of dust; (2) strength combined with lightness and convenience in wearing; (3) moderate cost, facility for cleaning and repair; (4) must not impede breathing, or heat or irritate the face. Competitors must send duplicate patterns of the type of mask which they invent to the President of the Association, 3, Rue de Lutèce, Paris, before the 30th November, 1893. A reward of 600 francs will be given for the best model, or it may be divided according to merit.

TIPS FOR TRADERS.

MANGANESE ORE is obtained in the United States, chiefly at Virginia. It has been found in many places, but only worked at a profit at a few. The ore was first mined in the States at Tennessee in 1837. The chief market is found amongst steel manufacturers, it being largely used for making steel car wheels, which resist the abrasion of the brake-shoe and the track with considerable success.

LEAD ORES are plentiful in Mexico, the principal galena mine is at Homo de Toro.

CARBONATE OF LEAD is found in abundance at Sierra de San Francisco.

BEDS OF COPPER are also plentiful in Mexico, and available for profitable working. Sulphurous and carbonated ores predominate though pure black oxide exists at San Ignacio, and pyrites and silicates in Bacamari.

BLLENDE is found in almost all the mining regions of Mexico, but the expenses of exploitation are considerable. Some of the samples of blende have on assay shown 50% of zinc.

BISMUTH AND OCHRE are to be found in fairly large quantities. The beds of the latter at San Luis Potosi are capable of being utilised to advantage, and they assay very high.

JEDDAH GUM finds favour in the markets at London and Trieste. The latter, being a free port, has an advantage over London. The gum, of which there are several qualities, varies from almost white to a reddish hue. The better qualities are good, but not equal to Kordafan gum.

ANILINE DYES are prejudicially affecting the use of permanent vegetable dyes in India. It is thought to be a misfortune by some that *kamela*, a natural dye obtained from the *mallotus philippinensis*, should be supplanted by the use of auroflavina. There seems to be a difference of opinion on the matter of durability and fastness, chemical dyes being looked on unfavourably on this account in some parts.

TARIFF CHANGES.

There are from time to time many alterations in the Customs' regulations abroad, which it is as well for those trading in chemicals, oil paints, and raw materials to be acquainted with. The following are some of the most recent changes of interest to the foregoing:—

PLASTER composed of resin, linseed oil, and a small proportion of oxide of lead is classed under category 298 of the French tariff and is subject to a duty of 45 francs per 100 kilos.

BRICKS OF PUMICE STONE with silica base not baked are dutiable at 75 centimes per 100 kilos.

CHEMICALS not specially certified will be admitted to Russia from France under section 112 of the new commercial convention at a reduction of 25 per cent. of the duty.

CARBONIC ACID in the liquid state and other liquified gases will pay duty according to the same section.

ALUMINIUM will be admitted under the same convention at a reduction of 10 per cent.

POSTAL CHANGES.

Parcels are now accepted at any post office for transmission to British Central Africa.

The postage is 1s. 9d. for each pound or fraction of a pound.

No parcel may exceed 7 lbs. in weight, 3 ft. 6 ins. in length, or 6 ft. in length and girth combined.

No parcel may contain a letter, anything explosive, dangerous, or likely to injure other parcels, or any liquid (unless securely packed in a proper case).

Parliamentary Jottings.

THE WAR OFFICE AND THE MANUFACTURE OF CORDITE.

IN the House of Commons last week, Mr. Hanbury asked the Secretary of State for War (1) who were the members of the Explosives Committee other than Sir F. Abel and Professor Dewar; (2) in how many and which foreign countries had Sir F. Abel and Professor Dewar, or either of them, taken out foreign patents for cordite, and on what dates in each case; (3) what was the date of the assignment to other persons of each of such patents; (4) to what official of the War Office did they, or either of them, communicate the fact of having taken out such patents, and on what date or dates, and by what method; and (5) when did this information formally reach the Secretary of State, and by what method?

Mr. Campbell-Bannerman, in answer to the first paragraph, said Dr. Dupré, F.R.S., was the third member of the committee, and Captain Thompson, R.A., was secretary. As to the subject of paragraphs 2 and 3, we have, as I have already stated, no information. With regard to the fourth and fifth paragraphs, there is no record of any formal communication of the fact that foreign patents were taken out, but the assignment of these patents was, as I informed the hon. member, intimated to the Director of Artillery on March 25, 1891, by letter.

Mr. Hanbury asked to what military authorities, if any, did Sir F. Abel and Professor Dewar, or the Explosives Committee, submit the result of their trials of various explosives, and what military authority decided that cordite was distinctly superior to the other explosives, and thereupon recommended it to the Secretary of State for adoption; did such or any military authorities investigate the other explosives independently of Sir F. Abel and Professor Dewar before giving their decision; on what date was it finally decided to adopt cordite into the service; and on what date did Messrs. Abel, Dewar, and Anderson apply for a patent for machinery for its manufacture?

Mr. Campbell-Bannerman, replying, stated that the results of the trials were reported by the committee to the Director of Artillery, who submitted his recommendation on the subject through the Adjutant-General to H.R.H. the Commander-in-Chief, and the Secretary of State approved cordite for manufacture and for further experiments on November 14, 1890. The reports submitted by the committee embraced all the explosives under competition, and the military authorities considered that no further investigation was necessary, except as to cordite. Subsequently to this approval of cordite it underwent further tests in various climates and under varying conditions. The results of these being satisfactory, it was finally and formally adopted as a service store in May, 1893. The date stated by the hon. member as that on which the patent for machinery was taken out—viz., July 22, 1889—was correct.

On Monday, 28th ult., Mr. Hanbury asked the Secretary of State for War whether his attention had been called to a memorandum stated to have been addressed to the Director of Artillery on August 20, 1888, and published by request in *The Times* of August 24 last; whether it was so published at the request of the War Office; whether, if so, the War Office would publish the reply made to it by the Director of Artillery; whether it was signed by all the members of the committee when it was first brought to the knowledge of the Secretary of State for War; whether the regulations suggested in paragraph 13 were afterwards determined upon; and, if so, were they, or the purport of them, disclosed to the private inventors submitting their explosives for examination, and would he lay them upon the table; and what was the date of the half-yearly report in which the memorandum was said to have been included.

Mr. Campbell-Bannerman: Yes, sir, my attention has been called to the memorandum published in *The Times* of August 24 last. This memorandum was not published at the request of the War Office. Sir F. Abel wrote to me asking whether I had any objection to his sending it to the Press, and I replied that I had none. No official reply has been recorded. The memorandum was signed, as is customary, by Sir F. Abel, as president of the Explosives Committee, and not by the members of the committee. With regard to paragraph 13, new regulations have not yet been finally determined on, although the matter has been under the consideration of various departments of the Government for some time. The memorandum was included in the half-yearly report dated December 31, 1888.

Mr. Hanbury asked whether any official or semi-official reply was given by the Director of Artillery to whom the communication was made.

Mr. Campbell-Bannerman said no official written reply appeared to have been made. What happened was this: The memorandum was received; a great many minutes were written upon it, and questions were started upon those minutes which appeared to have diverted the attention of the officials of the Department from the memorandum itself.

Hanbury asked whether it was a fact that no official sanction had been given to the view enunciated in the memorandum.

Mr. Campbell-Bannerman said that no official reply having been sent in or official approval or disapproval of the memorandum was what might have been communicated verbally he could not, say.

Mr. Hanbury asked if, in justice to all concerned, the War Office officials whose conduct had been impugned, the War Office would put down for one day next week a Special Committee in order to bring to a definite issue the question which had connection with the Cordite patents.

Mr. Campbell-Bannerman said he recognised the importance of the matter and he should be very glad, if possible, to give an opportunity of discussing it, though he did not know what the communication to the hon. member referred had to do with the case. The question was on what vote it could be raised. He would see what the arrangements were for next week.

FERTILIZERS AND FEEDING STUFFS.

At the House of Commons on Tuesday the amended Fertilizers and Feeding Stuffs Bill was considered and read the third time.

Correspondence.

We do not hold ourselves responsible for the opinions expressed by our correspondents.

ANSWERS TO CORRESPONDENTS.

ALKE).—We have done the best we can, and trust the information will serve your purpose.

—They were sent as usual but must have gone astray. We are pleased it is so much appreciated.

purpose doing so shortly.

Co.—We trust the explanation is satisfactory to you.

Co.—Yes, one appeared in issue No. 306.

(1) It can be used for the purpose, certainly, and is quite pure enough. It had better consult the B.P. From five to six grains is our impression.

idea is rather too well known, we fear, to merit special reference. It is not news to many, but not to the majority.

Trade Notes.

WHEAT CUSTOMS FRAUDS IN FRANCE.—In an advice recently received from Paris it is stated that in consequence of various frauds in the wheat trade to defraud the customs revenue, the Government has ordered the department to carefully analyse in future the wheat of husks and bone dust, under the guise of which corn and wheat heretofore been surreptitiously imported.

SCIENCE AND ART DEPARTMENT SCHOLARSHIPS.—In the list of candidates for Royal Exhibitions, National Scholarships, Studentships for 1893, we notice Royal Exhibitions have been obtained by G. S. Blake and E. H. Bagnall, of Manchester; a scholarship for Chemistry and Physics, Robert H. Jones, of Manchester; and another National Scholarship has been obtained by G. S. Blake, also of Manchester.

NEW LIEU OF COAL.—In view of the coal strike, the Salford Corporation has issued a circular advising manufacturers of the advantages of using coal as a fuel. It gives out great heat, and when used with the combustion and increases the duty from the coal. When it is equal in evaporative power to the best "burgoyne" it is does not make smoke. At the present time it is claimed to be the cheapest fuel obtainable in the borough.

BUCKINGHAM PALACE AND ITS DRAINS.—Buckingham Palace has been handed over to the sanitary engineers for a long period. In the years considerable sums have been spent upon the drainage, but it has been rather surface work than otherwise. It is now felt to bring the sewage system into fuller accordance with the science of the day. The House of Commons will be asked to vote on the work which will be accomplished within the present year.

MR. J. B. HENDERSON, a science master of the Boys' School, Brisbane, and a former pupil of Professor Dittmar, Glasgow and West of Scotland Technical College, has been appointed Government Analyst for Queensland. The salary attached to the office is £300 per annum. The late Mr. W. A. Milward, of Glasgow and Chapel-en-le-Frith, drysalter, who died last March, left a personalty valued at £10,222. Among the bequests was one of £1,000 to be devoted to the establishment of a lifeboat on the North coast of Scotland.

UNIVERSAL EXHIBITION AT MADRID.—The Consul-General for Spain has issued the prospectus of a Universal Exhibition, to be held at Madrid from April 1st to October 31st, 1894, under the patronage of her Majesty the Queen Regent of Spain. The prospectus, which may be obtained at the Spanish Consulate, 23, Billiter-street, London, E.C., contains a list of the council, the general regulations, the charges for space, and a specification of the different classes of exhibits which will be accepted. All communications should be sent to the secretary's offices, Palacio de la Industria y de las Artes, Madrid.

BREAD MADE WITH SOAP.—From a communication read to the Association of Belgian Chemists, it seems that Continental bakers are in the habit of mixing soap with their dough to make their bread and pastry nice and light. The quantity of soap used varies greatly. In fancy articles like waffles and fritters it is much larger than in bread. The soap is dissolved in a little water; to this is added some oil, and the mixture after being well whipped, is added to the flour. The crumb of the bread manufactured by this process is said to be lighter and more spongy than that made in the ordinary way.

THE CHEMICAL TRADE LEADS THE WAY.—One of the greatest of the many great engineering feats connected with the Ship Canal has been the construction of the swing aqueduct at Barton. This deviation of the Bridgewater Canal was opened for traffic recently, and it is with pleasure we learn that the first barge to enter the tank was the *Ann*, of Lymm, with a cargo of ammonia and vitriol for Messrs. J. Riley and Sons, of Hapton, near Accrington, Lancs. The demolition of the old aqueduct constructed by Brindley, and which has done duty for 125 years, is being proceeded with. It is expected that in a few weeks the Ship Canal will be filled with water from the Salford Docks to Warburton Bridge.

THE BREWING INDUSTRY.—The number of breweries at present existing in various great countries, and the quantities of beer annually brewed in them, has lately been ascertained by a French statistician, who states that there is in the entire world 51,000 breweries. Germany heads the list with 26,240, which produce yearly 4,750 million litres of beer (the litre being equal to about 1 3/4 pints). England comes next with 12,874 breweries, and an output of 2,600 million litres; then the United States, with 2,300 breweries and 3,500 million litres; Austria, with 1,942 breweries and 1,300 million litres; Belgium, with 1,270 breweries and 1,000 million litres; and France, with 1,044 breweries and 800 million litres. In Bavaria the annual allowance of beer per head of the population is 221 litres; in Berlin, 191; in Belgium, 169; in England, 143; in Switzerland, 31; in Denmark, 33; in the United States, 31; in Sweden, 11; and in Russia, 5.

THE STASSFURT INDUSTRY.—The Stassfurt Potash Syndicate has fixed the following prices for the potash salts used in the Eastern provinces by agriculturalists for manure, a sliding scale having been adopted, based upon the relative distances of the destinations to which consignments are to be sent:—Kainit, 1.50 M. per Metric Ctr.; Karnallit 90 Pfg. per Mtr. Ctr.; Sylvinit 2.30 M. per Mtr. Ctr. and Concentrated Potash Manure 8.25 M. Purchasers at a distance of more than 400 kilometers will be allowed a reduction of 1 Pfg. per Mtr. Ctr. for the crude salts and 2 Pfg. for concentrated salts, for every 20 kilometers. The decision of the Prussian Railway Directors not to adopt the much advocated reduced freights for manures in the agricultural districts this year, will, it is expected, lead to a reduced consumption of artificial manures, and that more attention will naturally be given to animal manures and sewage sludge, especially in the neighbourhood of the larger towns.

ITALIAN PETROLEUM.—The existence of petroleum in the Emilia and the Province of Chieti has been known for a long time, but the exploration of the various sources has been very indifferent. Recently, however, attention has been turned to the finding of sources of petroleum, there being no tax on the native production, whilst foreign petroleum is subject to a duty of 48 lire per 100 kilos. The Emilia supplies by far the best native petroleum; it is light, clear, opal-coloured, and contains little bituminous matter; 50 to 60 per cent. of oil for burning, and 40 per cent. of benzine are obtained from it. The spirit of enterprise is now particularly directed to the "Emilia," where a great many borings have lately been made. According to the *Deutsche Handels-archiv*, the value of the oil obtained, which in 1882 reached only 86,844 lire, was in the year 1891, 328,800 lire. The principal refinery is in the province of Parma.

THE GLOBE TUBE WORKS.—The members of the Incorporated Association of Municipal and County Engineers paid an interesting visit recently to the Globe Tube Works of Mr. John Spencer, J.P., at Holloway Bank. The party was shown the new tube mill lately put down for making large-sized welded iron and steel tubes. The visitors were then shown the process of making up large steel tubes, 21 in. diameter by 3/4 in. thick, weighing nearly a ton each, and were much interested in seeing a large steel plate bent and welded to a complete tube. These tubes are for a continental tram company, and each reservoir will contain compressed air at a pressure of over 1,000 pounds on the square inch, from which the tram engines will be worked. The members were also shown a special arrangement of tubes for sewer

ventilation, and, in addition, witnessed the manufacture of all kinds of gas, water, and steam tubes and fittings, telegraph poles, electric cable tubes, well tubes, etc., and they were much interested in some steel torpedo bombs recently completed for the Admiralty, 30ft. long by 7in. diameter inside, all in one piece.

THE REDDISH SEWAGE SCHEME.—Last week, at the hearing of the enquiry into the application made by the Reddish Local Board for sanction to borrow £14,000. to complete the sewage scheme for the district, it was pointed out that the engineering difficulties which had been met with in carrying out the scheme had been of an exceptional character, and, consequently the estimates of the former engineer had been considerably exceeded, which necessitated the making of the present application. After hearing all the details, the inspector asked what assurance could be given to the Local Government Board, that if its sanction were granted the Reddish Board would proceed with the work and complete it without further delay. The Local Government Board were hurt by the non-fulfilment of the undertakings previously given by the Reddish Local Board. The engineer and clerk explained that assurance had already been given to the Local Government Board by a unanimous resolution of the Board, and some security was afforded that no further delay would occur by the fact that the Mersey and Irwell Joint Committee was keenly watching their proceedings. The Inspector said, in view of this assurance, he would lay the matter before the Local Government Board as early as possible.

THE DUTY ON SODIUM NITRATE.—A correspondent to the *Times*, writing upon this matter, says:—"In estimating the chances of the nitrate duty being increased, it should be borne in mind that any such move would be of most disastrous consequences to the Chilean Government's approaching sale of its nitrate properties, from which two or three millions sterling are expected to be realised, to be used in redeeming the paper currency. It, therefore, seems highly improbable that the Chileans will make such a palpable mistake against their own interests, and that it is far more likely, when these properties are offered for sale, that a guarantee will be given to the effect that the present duty shall not be raised—in fact, if some such guarantee be not given, it is difficult to imagine that any capitalists could be found who would be willing to place themselves so entirely at the mercy of the Chilean or, indeed, of any other Government. On the other hand, a guarantee of the nature indicated would, by giving stability to the industry upon the welfare of which the Chilean Government's revenue so largely depends, prove of the greatest benefit to all parties. It is, therefore, but natural to expect that some such guarantee will be given rather than that any present increase of the duty will be attempted.

EARLY CHEMISTRY.—Long before chemistry became a science many of its processes and apparatus were in common use. Professor H. Carrington Bolton has made a list of some of these, finding that the Egyptians were acquainted with the process of glass-making at least as far back as 2500 B.C.; that crucibles of the 15th century B.C. are now in the Berlin Museum; and that syphons also were used in the 15th century B.C. Blowpipes and bellows were early employed. The earliest chemical laboratories now known were those of the Egyptian temples, in which the priests prepared the incense, oils, &c., used in the temple services. The Bible contains frequent chemical allusions. Cupellation is plainly described by Jeremiah, metallurgical operations by Job, Ezekiel, and others, and bellows by Jeremiah. Geber, the Arabian physician of the eighth century, wrote minutely of chemical processes. He described solution, filtration, crystallisation, fusion, sublimation, distillation, cupellation, and various kinds of furnaces and apparatus. Perhaps the earliest drawings of strictly chemical apparatus are the figures of distilling apparatus in a Greek papyrus of the 11th century. An alchemist's laboratory of the 6th or 7th century was uncovered in Egypt in 1885, and its contents included a bronze furnace, about 50 bronze vases with beaks, and some conical vessels resembling sand-baths. The balance as an instrument of precision reached a high development under the Arabians as early as the 12th century, when very accurate specific gravity determinations were described.—*Ceylon Advt.*

A QUESTION OF CARBONITE FUMES.—On Monday last the County Coroner (Mr. Brighthouse) held an inquiry at Wigan concerning the death of a miner named John Fairhurst, who died on the 15th ult., after an illness lasting about six weeks. Great interest appertained to the inquiry owing to allegations that the illness was due to the inhaling of fumes from an exploded carbonite shot. Mr. Matthews, Her Majesty's inspector of mines; Mr. T. Aspinwall, miners' agent; Messrs. Louie and Sayers (representing the Carbonite Explosives Company, Glasgow) were present at the inquest. The widow of the deceased stated that on the 30th June her husband came home and complained of having been stricken with the fumes of carbonite which was used in the pit in which he worked. Samuel Fairhurst said he was working with his father at the Norley Hall Collieries, when two carbonite shots were exploded. After the second shot the fireman did not examine the place, as he was required by law, and when

witness's father returned to the face of the coal he found the brattice had been blown down by the explosion of the shots. Whilst putting the brattices up again deceased complained of the fumes, and said they had "struck" him. He became very ill, and at once left the pit. His father did not work again. A fireman named Corless said he fired the shots in question, and after the last shot he went to the place and repaired the brattices. He denied the story given by the former witness, and said the deceased never complained about the fumes. James Dawber, a checkweighman at the colliery, said that when the deceased came up the shaft he complained of having got the fumes of carbonite on his stomach. Three medical men, who had attended the deceased during his illness, gave evidence to the effect that death was due to pleurisy, and that the fumes of carbonite could not possibly have had anything to do with his death. Mr. Matthews was also sworn, and gave evidence as to satisfactory tests he had put the explosive to. The jury, after a lengthy deliberation, found that deceased came by his death from pleurisy, accelerated by inhaling the fumes of carbonite.

Market Reports.

TAR AND AMMONIA PRODUCTS.

The tar products market taken in connection with that of sulphate of ammonia is a veritable see-saw, and we are now asked to believe that sulphate is weak and that benzol is strong. Candidly, we do not believe anything of the kind. No doubt, sulphate has reached a very inconvenient price for some dealers, especially those who deal in invisible supplies, and they know the foibles of the ordinary maker too well to let any opportunity slip, of sending sulphate back again to its old price. In the absence of more reliable information as to actual *bona fide* sales, we refrain from quoting the prices which others are quoting, as, unless the dealers have a very considerable quantity "up their sleeve," of which there are no outward visible signs, any decline cannot be serious for the present. Benzols and other tar products remain as quoted last week.

MISCELLANEOUS CHEMICAL MARKET.

A very great briskness prevails in the alkali trade through the demand for all products in anticipation of a stoppage of works. A premium of 10s. to 20s. per ton is being paid for near deliveries of bleaching powder and caustic soda. Current quotations are:—Bleach, £8. 10s nett, makers' works, and £9 nett, f.o.b., in hardwood casks. Caustic soda, 77%, f.o.b. Tyne, £11. 10s.; f.o.b. Liverpool, 74%, £11.; 70%, £10.; 60%, £9.; cream, 60%, £8. 15s., 10-ton lots and upwards. In soda ash there is little or no change to report on prices, though the demand is active. Current prices are £4. per ton for ammonia alkali, 58%, f.o.r. makers' works, and for Leblanc soda ash 1d. per degree. Soda crystals unchanged. In vitriol and muriatic acid the supply is unable to keep pace with requirements, and in some districts large advances in price are paid to obtain supplies. Chlorate of potash and soda are nominally at 7¼d. and 8¼d. per lb. respectively. Forward quotations are from 1d. to 1½d. per lb. lower, but only little business doing meantime. Ammonia salts in good demand, and prices all round are higher. White powdered arsenic continues scarce and in good request, with a firm price of £13 10s to £13 15s. Garston. Aniline oil and salt without improvement. Carbolic acid crystals dull, and only little business moving at 6¼d. to 6½d. for 39/40°. Liquid carbolic acids are easier. Brown acetate of lime rather firmer in price, but business on the whole is quiet. In acetate of soda and acetates of lead there is little movement. The market for recovered sulphur and Sicilian brimstone continues depressed. Apart from the disturbances in consequence of fuel supply, the general demand for chemicals is still slow and unsatisfactory.

THE METAL MARKETS.

LONDON, WEDNESDAY.—Pig iron firm. Scotch warrants closed at 42s. 6d. cash, Middlesbrough 35s 2d. cash, and hematite 45s. Copper firm: Chili bars, G.O.B.'s and G.M.B.'s closed at £41. 12s. 6d. to £41. 15s. cash, and £42 5s. to £42. 12s. 6d. three months. Tin firmer: Straits closed at £77. 17s. 6d. to £78. 7s. 6d. cash, and £78. 10s. to £78. 17s. 6d. three months; Australian, £78. 17s. 6d.; English ingots, £83. to £83. 10s. Lead steady: Spanish, £9. 16s. 3d.

s. 6d.; English, £9. 17s. 6d. to £10. 2s. 6d. Silesian spelter : £17. to £17. 2s. 6d. Nickel, 1s. 8d. Antimony, £38. 10s. er: First hands £6. 7s. 6d.; second hands, £6. 7s. Copper ady: Cape, $\frac{1}{16}$ to $\frac{1}{18}$. Copiapo, $1\frac{3}{4}$ to $1\frac{1}{2}$. Libiola, $2\frac{3}{4}$ son and Barry, $1\frac{3}{8}$ to $1\frac{1}{8}$. Rio Tinto, $12\frac{1}{16}$ to $12\frac{1}{16}$; Tharsis, $\frac{5}{8}$; Namaqua, $\frac{5}{8}$ to $\frac{7}{8}$.

VERHAMPTON, WEDNESDAY.—The coalowners' decision re the strike until better terms are offered by the Federation rally applauded at to-day's market. It is felt that the masters' alternative if the iron and steel business is not to be crushed. prices were again very strong. The Hoop Makers' Association ed the 5s. advance of last week, making hoops £6. 10s., and l the common bar makers. Sheets doubles were £7. 5s., and 8. Pigs increasingly scarce and dear; midland sorts 45s. to

GOW, WEDNESDAY.—Market better, with moderate business. one at 42s. $5\frac{1}{2}$ d. and 42s. $6\frac{1}{2}$ d. cash, also at 42s. 7d. and one month; closing with buyers at 42s. 6d. cash, sellers ask e. Cleveland done at 35s. 2d. cash, also at 35s. 3d. one closing with buyers at 35s. 2d. cash; sellers ask 35s. 3d. and hematite closes with buyers at 45s. cash, and 45s. $2\frac{1}{2}$ d. h; sellers $1\frac{1}{2}$ d. dearer. Middlesbrough hematite closes with 43s. cash; sellers ask 43s. 3d.

LIVERPOOL OIL AND COLOUR MARKET.

WEDNESDAY.

—Palm has been and is decidedly dull, and business doing is Lagos is quoted £24. 5s., and Benin £22. 15s. per ton transit. moving more freely, and spot demand is good, at prices from £32. to £41. per tun. Linseed has progressed in its rd movement, but is steadier to-day, with Liverpool makes at . per cwt. in export casks. Cottonseed has experienced a aring down in price, but is much firmer at the reduction, price pool refined being 21s. 3d. to 23s. per cwt. Castor oil is only rate request, but values are unaltered for good seconds Cal- $2\frac{3}{4}$ d., and first pressure French $2\frac{1}{2}$ d. to $2\frac{1}{8}$ d. per lb. Tallow n in better demand, with a steady market. North American rom 25s. 6d. to 27s. per cwt., according to quality. Resin : a still rules at 3s. 9d per cwt.; other grades without material n from last week's quotations. Spirits of turpentine are firmer, moderate demand, at 21s. 9d per cwt. Petroleum is rather quired for, and prices are steady: for American, $4\frac{1}{2}$ d to $5\frac{1}{2}$ d, g to quality; and Russian refined, 4d. per gallon.

OURS are steady without alteration in prices. Oxfordshire, common, £10., medium, £12., best, £15.; ire, common, 40s.; medium, 50s., best, 60s.; Welsh, best, econds, 50s., and common, 18s.; Irish, Devonshire, 40s. to rench, J.C., 55s. to 60s.; M.C., 65s. to 67s. 6d. Umber: quiet; Devonshire, 50s. to 55s. White lead, red lead, and f zinc unchanged. Venetian red, £6. 10s. to £10. Cobalt : d oxide, 9s. 9d.; black, 9s.; blue, 6s. Zaffres: No. 1, ; No. 2, 2s. 6d. Oxide of iron: Common, £6.; medium, finest, £20. Zinc oxide, £23. to £25.

THE LIVERPOOL MINERAL MARKET.

market continues firm though quiet. Manganese: s. slow; good demand for spot at full prices. Borate, r lb.; sulphate, £21. 10s.; oxalate, 1s. 6d. per lb.; e, £15., carbonate, £12. 10s., steady. Magnesite (raw lump) emand; raw ground, £6. 10s., and calcined £12. 10s. Bauxite (Hill brand): The demand for home trade is very brisk at full lump 20s., seconds 16s., thirds 12s. French chalk: A good s doing at full figures. Barytes: Carbonate is still scarce; 2s. 6d. to 85s.; finest white sulphate is in demand. "Angel" No. 1, 70s.; No. 2, 60s. to 65s.; No. 3, 45s. Pumicestone Iron ore flat, Bilbao, Irish, and Cumberland slow. San- and manganiferous more enquiries. Emery-stone firm; lump, £5. 10s. to £6.; smalls, £5. to £5. 10s. Fullers' Best lump, 55s.; fine impalpable ground, £7.; "Emerald" . 80s. Scheelite, wolfram, tungstate of soda, and tungsten metal Chrome ore in good demand, but more offering. Antimony er, at £11. 10s., and metal £43. to £45. Asbestos firm. lead ore, smalls, £10. 10s. to £11. Calamine strontia e (celestine) quiet. Limespar steady, especially for English ctured; old G.G.B. brand in demand at 50s. (ground). r quiet. Fluorspar: Best quality scarce. Ferro-manganese slow. ago: Spanish, £5.; best Ceylon lump at last quotations; Italian

and Bohemian, £4. to £12. per ton; "Founders," £5. to £6.; Blackwell's "Mineraline," £10. French sand, 20s. to 22s. 6d. Ground mica, £45. to £50. China clay steady, common, 18s. 6d.; good medium, 22s. 6d. to 25s.; best, 30s. to 35s. (at Runcorn). Bog ore (oxide of iron): finest quality 25s. to 30s.

REPORT ON MANURE MATERIAL.

Business during the week has been on a moderate scale, the tendency of prices being rather against buyers.

Florida 75/80% phosphate rock is still quoted $8\frac{1}{4}$ d. per unit, in cargoes c.i.f. to United Kingdom and good continental ports. Peace River rock is firm at 7d. per unit, and dried South Carolina River rock at $6\frac{3}{4}$ d. per unit. River Plate bones are firmly held, and it is doubtful whether under £4. 15s., good, United Kingdom ports, would now do. £3. 8s. 9d. on 70%, nett Hamburg terms, accepted for a cargo of River Plate bone ash. Crushed Kurrachee bones are worth fully £4. 10s., ex ship Hull or Liverpool, and Bombay bone meal, £4. 12s. 6d. autumn steamer shipment. Charring bones are in request on Mersey, and are worth £4. 5s. to £4. 7s. 6d. according to quality and condition. Nitrate of soda is unchanged. On spot the value of ordinary quality is 9s. 3d. per cwt., and of refined, 9s. $4\frac{1}{2}$ d. Due cargoes are worth 9s. per cwt., July-August shipments 9s. $1\frac{1}{2}$ d. to 9s. 3d., and September-Novembers, 9s. 3d. to 9s. $4\frac{1}{2}$ d. according to the size and test. There is nothing to report in miscellaneous manure material.

HULL PAINT, OIL, AND COLOUR REPORT.

TUESDAY.

OILS.—Trade here continues flat and lifeless, and it is said that never before this week have the shipments of coal fallen so low since this port commenced to ship this mineral. In the face of this scarcity, the supply of oils is well maintained, the markets this week being depressed and lower. The exports were considerably less this week; being linseed oil 755 cwt., against 1,170 cwt. the same week a year ago. Cotton oil 3,240 cwt., against 3,932 cwt. in same time; a feature of this week is the large imports of turpentine and resin, the total of the former being 5,307 cwt., and of resin 1,585 cwt. Linseed oil has been easier, and quotations, both spot and forward, have receded 7s. 6d. to 10s. per ton. The market closes steady at 21s. 3d. naked, spot Sept. 20s. 3d., Sept.-Dec. 19s., Jan.-April 18s. 9d. Refined cotton oil quiet at 19s. $7\frac{1}{2}$ d., naked spot Sept.-Oct. 19s. For Nov.-April there are buyers at 17s. 6d. Rape oil in casks 25s.; Niger oil nominal in casks 21s. Olive oil £34. to £40. per tun. Fish oil trade still remains dull. Coast cod oil £17. 10s. to £20. per ton, herring oil £16. 10s. per ton. Sod oil more enquired for, £15. to £17. per ton. Pine oil £7. per ton. Lubricating grease (equal to Stauffer's) from £16. per ton. Anti-friction grease from £5. 15s. Brown wool grease £8. per ton. Engine oil 1s. 3d. to 1s. 9d. per gallon. Petroleum jellies from 28s. Resin dull. Turpentine quiet.

CAKES.—The demand remains quiet, but prices are firm; no doubt as harvest operations cease orders will begin to come in again, but at present the market is without animation. Linseed cakes 99% pure, £8. 12s. 6d. to £8 15s.; ordinary, £7. 5s. to £7. 7s. 6d.; Russians, £8. 10s.; Americans, £7. 12s. 6d. Cotton cakes: Best makes, £5. 7s. 6d., and £4 17s. 6d. Nov.-March. Rape cakes, £4. per ton.

PAINTS.—Very little moving of an extraordinary character. The exports show a decrease in the quantity exported, but an improvement in chemicals as compared with same week a year ago, the figures being of the latter 4,055 packages against 1,366 packages. White lead, red lead, and oxide of zinc prices unchanged. Oxide of iron dry, £9. to £18. French ochre J.C., 60s. per ton. Lime blue from 16s. per cwt. Venetian red, £6. to £10. per ton. Enamels from 4s. 9d. dozen. Ready-mixed paints, in various sized tins, from 28s. per cwt. Oak varnish from 6s. per gallon.

TYNE CHEMICAL REPORT.

TUESDAY.

Chemicals are steady without much alteration in price. Soda crystals, £2. 17s. 6d. per ton, gross weight. Bleaching powder, £8. 15s. per ton, this price having been paid Caustic soda, £11. 10s., to £11. 15s. per ton for highest test. Sulphur quiet at £4. 5s. per ton.

Bleaching powder, softs, £8. 15s. per ton nett; hards, £9. per ton; caustic soda, 76/77%, £11. 10s. per ton, 70%, £10. per ton; recovered sulphur, 2 cwt. bags, £4. 5s. per ton; soda ash, 48%, £4. per ton, 52%, £4. 7s. 6d. per ton, 56%, £4. 15s. per ton; alkali, 36%, £3. 15s. per ton; white alkali, 48%, £4. 15s. per

ton, 50%, £5. per ton, 52%, £5. 5s. per ton; hyposulphite of soda, in 5-7 cwt. casks, £7. per ton, ditto, in 1 cwt. kegs, £7. 15s. per ton; silicate of soda, 75° Tw., £2. 15s. per ton, 100° Tw., £3. 10s. per ton, 140° Tw., £3. 17s. 6d. per ton; soda crystals, in casks, £2. 17s. 6d. per ton gross weight, in 2 cwt. bags, £2. 17s. 6d. per ton nett weight; chlorate of potash, 8½d. per lb. less 6%; pearl hardening, £3. per ton nett; pure white sulphate of alumina, £4. 2s. 6d. per ton; blanc fixe, £7. 10s. per ton; chloride of barium, £7. 10s. per ton; carbonate of alumina, £28. 15s. per ton nett; aluminate of soda, £33. 15s. per ton nett; in 5 ton lots, £28. 10s.; hydrate of barium, £10. per ton nett.

South Durham Salt: Steady at 9s. 6d. to 10s. per ton., f.o.b. Tees. Coal: Market to-day is rather easier, owing principally to the general opinion that the threatened strike of miners in Durham will not take place, and also owing to the resumption of work in Wales. Best Northumbrian steam is quoted at 13s. to 13s. 6d. per ton; small steam, quiet at 5s. to 5s. 6d.; bunker coals vary in price at 9s. to 10s.; coke steady at 16s. to 17s. per ton, with a full demand.

WEST OF SCOTLAND CHEMICALS.

GLASGOW, TUESDAY.

In the mineral oil and paraffin section the market is stronger all round, and there has been an appreciable rise in the 865° oil (gas making oil) which now fetches £4. 5s. per ton. Highest gravity of lubricating oils (895°) has also advanced 5s. for the best brands, to £6. 10s. In burning oil the season's contracting is complete and full, and large deliveries are now going on. The price for unarranged business is a shade higher than the figure quoted below, and for the time it may be said there is little or no surplus for disposal to English buyers at the cheaper rate. The market has not been so fully taken up for years, but then, of course, the prices as recently adjusted are much in buyer's favour. For sulphate of ammonia in this market, £15. 5s. has been paid for prompt, and at the time of writing it is probably not procurable anywhere for less, while some of the very few holders may be demanding more. Forward business is spoken of at £13 5s., but very little is doing. In general chemicals the market is stronger owing to the prospect of some of the large English works being closed, and prices are expected to go higher.

Chief prices current are:—Soda crystals £2. 17s. 6d. to £3. nett, Tyne; soda ash £5. 5s. nett, Tyne; refined alkali £6. 10s. nett, Tyne; alum in lump £5. nett, Glasgow; caustic soda, white, 76°, £11., 70/72° £9. 10s., 60/62° £8. 10s., and cream 60/62° £8. 5s., all nett, Liverpool; bleaching powder £8. 10s. to £8. 15s. nett Tyne; salt-cake 24s.; borax, English refined, £30., and boracic acid, £37. 10s. nett, Glasgow; bicarbonate of soda, 5-cwt. casks, £6. 15s., and 1 cwt. casks £7. less 2½%, Liverpool; bichromate of potash, 4½d. nett, for Scotch and English deliveries (for export, 4¼d. nett f.o.b. Glasgow); bichromate of soda, 3¼d. nett, for Scotch and English deliveries (for export, 3½d. nett, f.o.b. Glasgow); chlorate of potash 9d. less 5% Liverpool; nitrate of soda, 9s. 6d.; sulphate of ammonia, £15. 5s., prompt, f.o.b. Leith; salammoniac, first and second white, £37. and £35. less 2½% any port; sulphate of copper, £15. less 5% Liverpool; paraffin scale, hard and soft, 1¼d. per lb; paraffin wax 120° semi-refined 2¾d.; paraffin spirit (naphtha) 4d. a gallon spot; paraffin oil, burning, standard No. 1 grade, 5d. per gallon at works, for Scotch buyers (English sales ½d. to 1d. lower); ditto (lubricating) 865° £4. 5s., 885° £4. to £5. 10s., and 890/895° £4. 15s. to £6. 10s. Week's imports of raw sugar at Greenock were 19,630 bags.

New Companies.

John Pickthall and Sons, Ltd.—CAPITAL £10,000. in shares of £1. each. This company has been formed to purchase several businesses for the manufacture of paper, dealing in Asbestos, and developing or working Asbestos mines, &c. The subscribers to the memorandum of association are:—T. Kish, 3, Heron-court, Richmond, Surrey, gentleman; W. G. Matthews, Nunhead, paper merchant; S. Burnay, Barnsbury, traveller; W. P. Harper, Leyton, traveller; H. T. Kinnear, 18, Appold-street, London, E.C.; P. C. Stevens, Stoke Newington, accountant; A. Watt, 6, Frontin Villas, The Green, Stratford, gentleman.

Philadelphus Jeyes and Co., Ltd.—CAPITAL £20,000. in shares of £10. each. This company has been formed to take over the business of wholesale chemist, formerly carried on by Mr. Jeyes. The subscribers to the memorandum of association are:—A. A. Jeyes, 6, Drapery, Northampton, gentleman; F. C. Jeyes, Brixworth, gentleman; O. T. Ward, 6, Drapery, Northampton, chemist; T. G.

Turner, The Elms, Billing-road, Northampton, gentleman; F. Barker, 111, Holly-road, Northampton, solicitor's clerk; F. J. Burton, 2, Turner-street, Northampton, solicitor's clerk; J. T. Stanton, 6, Dern-gate, Northampton, solicitor's clerk.

Whitwick Granite Co., Ltd.—CAPITAL £10,000. in shares of £5. each. This company has been formed to acquire an estate in Leicestershire and to carry on the business of miners, manufacturers of cement, lime, &c. The subscribers to the memorandum of association are:—C. Burton Whitwick, draper; W. Brown, Coalville, bootmaker; W. Hurst, Coalville, secretary; M. L. O'Reilly, Whitwick, clerk in holy orders; W. B. Beckwith, Whitwick, manufacturer; J. Ford, Coalville, engineer; W. Melling, Whitwick, engineer.

The Patent List.

This list is compiled from Official sources in the Manchester Technical Laboratory, under the immediate supervision of George E. Davis and Alfred R. Davis, who report professionally upon the value of Chemical Patents.

APPLICATIONS FOR ENGLISH LETTERS PATENT.

Manufacture of Sulphur. F. J. R. Carulla. 15,424. August 14.
New Colouring Matters. S. Pitt. 15,444. August 14.
Obtaining Non-volatile Metals from their Sulphates. W. Mills. 15,454. August 15.
Obtaining Ammonium Chloride and Carbonate or Bicarbonate of Soda from Blast Furnace or Producer Gases. J. Cunningham and J. Addie. 15,466. August 15.
Improved Industrial Application of Titanic Mineral Compositions. J. Y. Johnson. 15,500. August 15.
Colouring Matters. R. G. Williams. 15,509. August 15.
Improvements in Bleaching Cotton Cloths and Apparatus therefor. G. A. J. Schott. 15,531. August 16.
Explosives. O. Imray. 15,566. August 16.
Electric Furnaces. F. Chaplet. 15,577. August 16.
Electrolytic Decomposition of Brine, etc. F. G. Baily and M. Guthrie. 15,610. August 17.
Electrolytic Decomposition of Brine, etc. F. G. Baily and M. Guthrie. 15,617. August 17.
Manufacture of Soap. Read, Holliday, and Sons, Limited, and T. Holliday. 15,618. August 17.
Improved Compound Asbestos Packings. A. E. H. Field. 15,622. August 17.
Apparatus for Attaining Smokeless Combustion. A. Burkart-Stalder. 15,640. August 17.
Electrolytic Treatment of Liquids. N. Browne. 15,669. August 18.
Aluminium-Antimony Alloys. V. B. Alzugaray. 15,680. August 18.
Improvements in Storage Batteries. G. H. Roe and G. Sutro. 15,681. August 18.
New Varnish Making Material to Substitute India-Rubber, etc. C. Umfreville King and R. V. Jellico. 15,686. August 18.
New Colouring Matters. O. Imray. 15,698. August 18.
Improvements in obtaining Chloride. W. Paterson and J. Jack. 15,735. August 19.
Treating Sulphate of Lead for the Preparation of Paints. W. V. Wilson. 15,751. August 19.
Refrigerating Machinery. W. McKeegan. 15,755. August 19.
Dust Separating Apparatus on the Fan Principle. 15,770. August 19.
Pulverizing and Drying Apparatus. A. Von Podewils. 15,772. August 19.

GERMAN PATENTS period ending AUGUST 26, 1893.

Specialy abstracted by Dr. H. Zerener, civil engineer, the Patent Office, 20 Eichendorffstrasse, Berlin, N., for the Chemical Trade Journal. Dr. Zerener is willing to at once protest against the grant of such new Patents as may collide with the interests of subscribers.

12 F. 6,858. Preparation of Antipyrine. Meister Lucius and Brüning, Höchst a/M.
12 E. 3,744. Preparing Vanillin from Paraoxybenzaldehyde. H. Ernst, Hanover.

Gazette Notices.

PARTNERSHIPS DISSOLVED.

W. C. CURRIE AND J. BECKETT, manure manufacturers, Liverpool and Sutton Moss, under the style of Beckett and Currie, and the Fish, Bone, and Waste Product Manure Company.

W. E. POPE AND T. M. WILLIAMS, cotton-waste manufacturers, Cliftonville, Stockholm-road, South Bermondsey, S.E., under the style of the Cotton-Waste Manufacturing Company.

BANKRUPTCY ACTS, 1883 and 1890.

Adjudications.

RYLANDS, DAN (trading as the Rylands Main Colliery Company and the Rylands Quarry and Brick Works Company, Shepcote, near Barnsley, and Rylands Main Colliery and Rylands Quarry and Brick Works, near Barnsley), colliery proprietor, quarry owner, and brick manufacturer.

KENDELL, JOHN WILLIAM, Britannia Terrace, Harrow Green, Leytonstone, N.E., and Portway, Westham, E., late Oak Villas, Park Grove, Leytonstone, N.E., oil and colourman, etc.

IMPORTS OF CHEMICAL PRODUCTS

AT

THE PRINCIPAL PORTS OF THE UNITED KINGDOM.

LONDON.

Week ending August 19th.

Acetic Acid —		
Germany,	5 pkgs.	A. & M. Zimmermann
Holland,	100	"
Alkali —		
France,	285 c.	Arnati & Harrison
Alum —		
Holland,	13 pkgs.	Ohlenschlager Bns.
Ammonia (Liquid) —		
Holland,	40 pkgs.	H. Lorenz
Antimony —		
A. Turkey,	10 l.	Rogers, Sons, & Co.
Portugal,	50	J. Bamber
A. Turkey,	50	Quirk, Barton, & Co.
Spain,	10	J. Bamber
France,	6	B. & F. Wf. Co., Ltd.
Austria,	20	Vivian, Younger, & Co.
Asbestos —		
U. States,	£2,500	A. J. Humphrey
Holland,	64	Phillipps & Graves
France,	113	Mory & Co.
Barytes —		
Belgium,	74 cks.	W. Harrison & Co.
Holland,	60	Magee, Taylor, & Co.
Germany,	37	H. Lambert
Belgium,	43	J. L. Lyon & Co.
Germany,	132	W. Harrison & Co.
Bromide of Iron —		
Germany,	27 pkgs.	A. & M. Zimmermann
Caoutchouc —		
E. Indies,	28 c.	Butler's Wf., Ltd.
"	134	Huttenbach & Co.
France,	4	H. Johnson & Sons
Madagascar,	350	Procter Bns.
Germany,	15	Hale & Son
"	14	F. Huth & Co.
Natal,	71	L. & I. D. Jt. Co.
Mozambique,	20	Forbes, Forbes, & Co.
Rangoon,	596	L. & I. D. Jt. Co.
Zanzibar,	208	"
Carbolic Acid —		
Spain,	22 cks.	Burt, Boulton, & Co.
Carbonic Acid —		
Holland,	30 pkgs.	G. Rahn & Co.
France,	13 cks.	Beresford & Co.
Belgium,	30 brls.	Burrell & Co.
France,	20	J. T. Morton
"	60	Lucas & Spencer's Wf., Ltd.
Caster Oil —		
France,	25 c.	Petri Bns.
Chemicals (otherwise undecorated)		
U. States,	5 pkgs.	Hopton & Co.
Germany,	13	Phillipps & Graves
"	£10	Domeier & Co.
"	6	F. Stahl Schmidt & Co.
"	8	T. H. Lee
"	22	A. & M. Zimmermann
"	10	Craven & Co.
Holland,	3	J. Owen
Belgium,	22	G. Boor & Co.
Germany,	2	L. & I. D. Jt. Co.
Holland,	4	Hernu, Peron, & Co.
Cream of Tartar —		
France,	17 pkgs.	B. & F. Wf. Co., Ltd.
"	23	W. C. Bacon & Co.
"	2	Maconochie Bns.
"	5	F. C. Devon & Co.
Holland,	23 cks.	Middleton & Co.
Belgium,	15	Union L. Co., Ltd.
France,	2	Sharland & Co.
Spain,	4	Ross & Deering
"	7	McDougall & Bonthron
Destrine —		
Germany,	5 pkgs.	Prop. Sun Wf.
Dyestuffs —		
Anthracoene		
Denmark,	48 pkgs.	Burt, Boulton, & Co.
Cochineal		
Carthage,	60 pkgs.	J. Owen
"	12	Kuhner, Henderson,

Cutch		
Rangoon,	360 pkgs.	A. Howden & Co.
"	418	Phillipps & Graves
Cape,	215	Anderson, Weber, & Smith
Divi Divi		
Jamaica,	175 pkgs.	L. & I. D. Jt. Co.
Extracts		
France,	27 pkgs.	Union L. Co., Ltd.
Austria,	300	A. J. Humphrey
Denmark,	1	M. D. Co.
Belgium,	80	T. H. Lee
"	2	Butler's Wf., Ltd.
U. States,	10	R. Baelz & Co.
"	50	Skilbeck Bns.
Fustic		
Jamaica,	139 t.	S. Dobree & Sons
"	50	Park, Macfadyen, & Co.
"	21	L. & I. D. Jt. Co.
Gambier		
E. Indies,	1,313 pkgs.	Adams, Gilfillan, & Co.
"	482	L. & I. D. Jt. Co.
"	103	Prop. Bull Wf.
Indigo		
E. Indies,	9 cts.	F. W. Heilgers & Co.
"	16	Croysdale & Co.
"	7	L. & I. D. Jt. Co.
"	52	Parry & Co.
"	14	Park, Macfadyen, & Co.
"	4	Stansbury & Co.
Logwood		
Jamaica,	18 t.	Park, Macfadyen, & Co.
"	115	L. & I. D. Jt. Co.
Myrabolams		
E. Indies,	786 pkgs.	L. & I. D. Jt. Co.
"	136	S. H. Smith
"	273	Union L. Co., Ltd.
Naphthalene		
Germany,	15 pkgs.	Fleming's Oil Co.
Orchella		
Ceylon,	9 pkgs.	Anderson, Weber, & Smith
Saffron		
Spain,	1 pkg.	Major & Field
Tanner's Bark		
Natal,	55 l.	A. & W. Nesbitt
Melbourne,	54	J. Morrison & Co.
Adelaide,	50	Goad, Rigg, & Co.
Melbourne,	13	Culverwell, Brooks, & Co.
"	50	Brown & Elmslie
"	51	Devitt & Hett
Belgium,	23	Leach & Co.
"	14	Sawer, Sons, & Co.
Turmeric		
China,	17 pkgs.	H. A. Litchfield & Co.
Valonia		
A. Turkey,	70 t.	Adam Bns.
"	100	Boucher, Mortimore, & Co.
"	23	Hicks, Nash, & Co.
Glucose —		
U. States,	750 pkgs.	750 c. Barrett, Tagant, & Co.
"	1,750	1,750 c. L. Sutro & Co.
"	3,900	3,900 A. Hoake, Roberts, & Co.
"	120	660 T. M. Duchesons
"	115	652 Soundy & Sons
"	50	292 Fuerst Bros
"	25	137 Fellows, Morton, & Co.
"	1,000	1,000 G. Hedges & Son
Germany,	1	4 Stein Bns.
U. States,	100	600 W. Balchin
"	605	1,527 Prop. Chumblin's Wf.
"	50	300 B. & N. Whys
"	250	250 J. Barber & Co.
"	800	3,053 R. G. Hall & Co.
"	200	1,129 Pillow, Jones, & Co.
"	50	284 J. Keiller & Son
"	250	500 Page, Son, & East
"	130	520 L. Norman & Co.
"	1,000	1,000 Humphrey & Co.
"	750	750 Devitt & Hett

U. States,	770	2 303 P. Windmuller & Co.
Iodine —		
Germany,	17 pkgs.	A. Gibbs & Sons
Magnesia —		
Holland,	30 pkgs.	Beresford & Co.
Manganese —		
Japan,	500 t.	Macqueen Bns.
E. Indies,	1	Middleton S. S. Wf. Co., Ltd.
Manganese Oxide —		
Germany,	2 pkgs.	H. Lambert
Manure —		
Germany,	40 t.	D. De Pass & Co.
France,	60	J. Burnett & Co.
Holland,	6	H. & E. Albert
Germany,	10	R. W. Greeff & Co.
Methyl Alcohol —		
Germany,	16 dms.	Stein Bns.
Holland,	9 pkgs.	Lister & Biggs
Mica —		
W. Australia,	£10	Dalgety & Co., Ltd.
E. Indies,	2,625	W. M. Smith & Sons
Adelaide,	125	L. P. D. Co.
Burmah,	16	W. M. Smith & Sons
Ochre —		
Holland,	7 pkgs.	Phillipps & Graves
France,	5 cks.	H. Johnson & Sons
"	7	Stobbs, Wilson, & Co.
"	15	H. A. Litchfield & Co.
Oxalic Acid —		
Norway,	19 pkgs.	A. Hughes
Paraffin Wax —		
U. States,	200 brls.	G. H. Frank
N. Russia,	55	W. Bew
U. States,	2,703	200 cs. J. H. Usmar & Co.
"	100	Mordaunt Bns.
Phosphate Rock —		
Holland,	1 t.	Hernu, Peron, & Co.
U. States,	2105	Anglo Contl. G. Wks.
Belgium,	220	Odams Chemical M. Co.
"	60	J. Gibbs & Co.
Pitch —		
N. Russia,	300 cks.	Hoare, Marr, & Co.
Germany,	550	Linck, Moeller, & Co.
"	62	brls. Smith Bns.
France,	29	62 Poth, Hille, & Co.
N. Russia,	30	J. Hunt & Son
Plumbago —		
Germany,	1 ck.	B. Gallaway
Ceylon,	65 cs.	T. H. Lee
"	70	brls. Doulton & Co.
Potash —		
France,	162 c.	Petri Bns.
Potassium Carbonate —		
France,	40 c.	J. A. Reid
Potassium Oxymuriate —		
Belgium,	22 pkgs.	Sawer, Sons, & Co.
Potassium Permanganate —		
Germany,	20 pkgs.	Spies Bns. & Co.
Pyrites —		
Spain,	1,428 t.	Societe Commerciale
Rosin —		
U. States,	161 brls.	Fairclough, Dodd, & Co.
"	4,350	F. & S. Chiesman & Co.
"	2,079	H. Hill & Son
"	3,049	G. Nutter & Co.
"	82	C. Tennant, Sons, & Co.
Sal-acetos —		
Norway,	14 pkgs.	A. Hughes
Saltpetre —		
Germany,	108 cks.	P. Hecker & Co.
"	33	3 bgs Brown & Elmslie
E. Indies,	694	Lucas & Spencer's Wf.
Germany,	687	Ralli Bros.
"	3	W. H. Mitchell
Soda —		
Holland,	125 c.	Beresford & Co.
Germany,	20 pkgs.	A. F. White & Co.
Sodium Acetate —		
France,	9 pkgs.	S. F. Waters & Co.

Sodium Carbonate —		
Germany,	88 c.	H. Lambert
Stearine —		
France,	100 bgs.	H. Hill & Sons
"	100	H. Walbaum & Tosetti
Sulphur —		
France,	11 t.	Killick, Martin, & Co.
Belgium,	24 pkgs.	Butler's Wf., Ltd.
Talc —		
Austria,	£40	Stobbs, Wilson, & Pollard
Tar —		
Russia,	355 brls.	Elkan & Co.
"	3,200	Linck, Moeller, & Co.
Tartar —		
Italy,	22 pkgs.	Howards & Sons
Tartaric Acid —		
Holland,	19 pkgs.	Middleton & Co.
France,	8	B. & F. Wf. Co., Ltd.
"	40	"
Turpentine —		
U. States,	750 brls.	Prod. Brokers Co., Ltd.
Ultramarine —		
Holland,	13 cks.	5 cs. Hernu, Peron, & Co.
Germany,	3	H. Lambert
Holland,	1	Phillipps & Graves
Varnish —		
U. States,	29 pkgs.	Taylor Bns.
"	32	Beck & Pollitzer
"	6	Allan Bns. & Co.
"	2	Randall Bns.
Verdigris —		
France,	10 pkgs.	Williams, Torrey, & Co., Ltd.
"	10	Ross & Deering
White Lead —		
Holland,	31 cks.	Blundell, Spence, & Co.
Belgium,	24	Leach & Co.
"	12	O'Hara, Matthews, & Co.
Germany,	26	Burrell & Co.
"	32	Spies Bns. & Co.
"	32	Colthurst & Harding
"	9	P. Jantzen
"	10	Wilkinson, Heywood, & Co.
Holland,	50	T. & W. Farmiloe
Zinc Oxide —		
Holland,	120 brls.	M. Ashby, Ltd.
Germany,	50	Beresford & Co.
Belgium,	13 cks.	"
Germany,	10	"
Holland,	625	Soundy & Sons

LIVERPOOL.

Week ending August 17th.

Antimony —		
Antofagasta,	514 sks.	Allion, Aramayo, & Co.
Borax —		
Leghorn,	15 cks.	"
Caoutchouc —		
Havre,	2 cs.	Cunard S. S. Co., Ltd.
Carbolic Acid		
Rotterdam,	4 tbs.	"
Castor Oil —		
Genoa,	20 cs.	Ferris & Co.
"	35	A. Schneider
"	10	"
Leghorn,	10	Carruthers Sons & Co.
Marseilles,	28 brls.	"
Cellulose —		
Stettin,	306 bls.	"
Colours —		
In transit,	55 cs.	"
Rotterdam,	27 cks.	"
Cream of Tartar —		
Marseilles,	20 brls.	"
Barcelona,	5 hds.	Sachse & Klein
"	5	"

Tarragona, 2 cks. 1
" 5 cks Sasche & Klemm
Dyestuffs—
Cochineal
Gr. Canary, 25 bgs. Kennedy & Moore
Divi Divi
Savanna, 31
Extracts
Marseilles, 30 brls.
Bordeaux, 50 cks.
Redon, 471 R. J. Francis & Co.
New York, 250 bxs.
Fustic
Tampico, 55 t.
Colon, 830 ps. Widow Duranty & Son

Myrabolams 1,075
Bombay, 811 bgs. 1,300 pkgs.
" 650 E. D. Sassoon & Co.
" 487 A. Salmon & Co.
" 304 Forbes, Forbes & Co.

Saffron
Valencia, 2 cs.
Sumac
Palermo, 300 bgs.
Turmeric
Bombay, 100 bgs. D. Sassoon & Co.

Farina—
Hamburg, 100 bgs. G. A. Geveke & Co.
In transit, 50
Antwerp, 5 J. T. Fletcher & Co.

Glucose—
New York, 250 brls.
Hamburg, 35 cks.

Lead Acetate—
Hamburg, 32 cks.

Limestone—
Antwerp, 1 crt.

Magnesium—
Cagliari, 1,128 bgs.

Manganese—
Carrizal Bajo, qty. Duncan, Fox, & Co.

Valparaiso, qty. Balfour, William-son & Co.

Gothenburg, 100 t.
Bayonne, 194

Mica—
New York, 19 bls. T. Robinson & Son

Ochre—
Marseilles, 50 cks.
Rouen, 22 cs. R. J. Francis & Co.

Paint—
Boston, 15 cs. R. J. Paige

Paraffin Scale—
New York, 298 brls. Standard Oil Co.

Philadelphia, 518

Phosphate—
Quebec, 145 t.

Pitch—
Hamburg, 59 cks.
Bayonne, 2,094 brls.
Antwerp, 23,350 kilos.

Potash—
Antwerp, 10 brls.

Pumice Stone—
Leghorn, 35 cks.
Messina, 19 30 cs.

Pyrites—
Huelva, 4,529 t. Matheson & Co.
" 1,757 Tennants & Co.

Rosin—
Bordeaux, 165 cks.
Bayonne, 2,094 brls. Japp & Kirby

Salt—
Hamburg, 1 bg.

Saltpetre—
Hamburg, 12 cks.
Calcutta, 2,301 bgs.

Sheep Dip—
B. Ayres, 187 brls. Newton Chambers & Co.

Soap—
Leghorn, 150 bxs. Weaver & Sterry

" 50

Sodium Chlorate—
Havre, 75 kgs. Cunard S. S. Co., Ltd.

Sodium Nitrate—
Iquique, 310 bgs. Hainsworth Watson & Co.

Stearine—
Philadelphia, 87 brls.

Sulphur—
Catania, 200 t.

Tallow—
Boston, 234 tcs. G. H. Hammond & Co. Ltd.

" 475 283 brls.
Rouen, 19 cks. R. J. Francis & Co.

Tartar—
Bordeaux, 7 cks. 100 bgs.

Tartaric Acid—
Marseilles, 4 cks.
Rotterdam, 5 Sachse & Klemm

Ultramarine—
Hamburg, 4 cs.
Rotterdam, 30

Varnish—
New York, 3 cs. Larrinaga & Co.
" 12 brls. Rankin Gilmour & Co.

Verdigris—
Bordeaux, 7 cks.

White Lead—
Antwerp, 12 cks.
Rotterdam, 10

Zinc Oxide—
Lisbon, 104 bgs.
New York, 100 brls. 100 bds. J. T. Fletcher & Co.
Antwerp, 15

" 40 25 cks.
Rotterdam, 25 cks.

HULL.

Week ending August 19th.

Alkali—
Bremen, 2 cs. 1 ck. Veltmann & Co.

Asbestos—
Flushing, 3 crts. Brasch & Rothenstein

Barytes—
Rotterdam, 22 cks. Hutchinson & Son

Antwerp, 43 50 bgs. Bailey & Leatham

Rotterdam, 4 G. Lawson & Sons

Bremen, 84
" 103 bgs. Veltmann & Co.

Chemicals (otherwise undescribed)
Antwerp, 80 pks. Wilson, Sons, & Co., Ltd.

Bremen, 1 ck. 1 cs. Veltmann & Co.

Chrome Alum—
Rotterdam, 25 cs. Hutchinson & Son

Colours—
Flushing, 14 pkgs. G. Lawson & Sons

" 3 cks. Brasch & Rothenstein

Rotterdam, 105 pks. W. & C. L. Ringrose

Amsterdam, 1 bg.
Flushing, 7 cks. 1 cs. Hutchinson & Son

Rotterdam, 3 G. Lawson & Sons

Danzig, 10 pks.
Rotterdam, 10 brls. 4 bxs Hutchinson & Son

Bremen, 2 cks. Veltmann & Co.

" 4 J. & T. Seddon

Dextrine—
Stettin, 75 bgs. Wilson, Sons, & Co., Ltd.

Dyestuffs—
Alizarine
Rotterdam, 62 pks. W. & C. L. Ringrose

Rotterdam, 27 brls. 94 cks. 39 cs. Hutchinson & Son

Indigo
Rotterdam, 2 cks. W. & C. L. Ringrose

Farina—
Hamburg, 50 bgs.
Harlingen, 1,100
Stettin, 140 Wilson, Sons, & Co., Ltd.

Glucose—
Stettin, 42 cks. 350 bgs. Wilson, Sons, & Co., Ltd.

New York, 50 brls.

Lime—
Stettin, 3 cks. Wilson, Sons, & Co., Ltd.

Paint—
New York, 10 cs. Wilson, Sons, & Co., Ltd.

Pitch—
Rotterdam, 43 cks. W. & C. L. Ringrose

Hamburg, 13 cs. Wilson, Sons, & Co., Ltd.

Antwerp, 60 bls.
" 17 cks.

Plumbago—
Hamburg, 2 cks.

Potash—
Stettin, 13 cks.

Size—
Hamburg, 1 ck. Bailey & Leatham

Soap—
Boston, 4 cs.

Stearine—
Antwerp, 25 bgs. Wilson, Sons, & Co., Ltd.

Sulphur—
Antwerp, 1 ck.

Tallow—
New York, 60 pks. Wilson, Sons, & Co., Ltd.

Turpentine—
Libau, 52 cks.
Bordeaux, 10 brls. Rawson & Robinson

Ultramarine—
Rotterdam, 1 ck. G. Lawson & Sons

Varnish—
New York, 43 pks. Wilson, Sons, & Co., Ltd.

Harlingen, 1 dm.

White Lead—
Antwerp, 77 cks. Bailey & Leatham

GLASGOW.

Week ending August 24th.

Acetate of Lime—
New York, 837 bgs.

Antimony Sulphate—
Hamburg, 1 ck.

Chemicals (otherwise undescribed)
Christiania, 8 cks.

Colours—
Rotterdam, 1 ck. J. Rankine & Son

Hamburg, 7
Rotterdam, 29 pkgs.

Dyestuffs—
Alizarine
Rotterdam, 99 cks. 2 cs. J. Rankine & Son

Logwood 23
New York, 400 bgs.

Glucose—
New York, 726 brls.

Iron Oxide—
Montreal, 85 brls. 100 hf brls.

Lead Acetate—
Hamburg, 12 cks.

Manganese Oxide—
Rotterdam, 6 cks. J. Rankine & Son

Ochre—
Rouen, 12 cks.

Paraffin Scale—
Philadelphia, 420 brls.
New York, 200

Potash—
Hamburg, 9 cks.

Potassium Carbonate—
Hamburg, 12 cks.

Pyrites
Huelva, 1,709 t. Tharsis Sulphur & Copper Co., Ltd.

Rosin—
New York, 3,013 brls.

Salt—
New York, 27 tcs.

Saltpetre—
Hamburg, 75 kgs.

Sodium Nitrate—
Hamburg, 5 kgs.

Tallow—
New York, 100 hds. 85 tcs.

Tartar—
Bordeaux, 2 cks.
In transit, 1

Tartar Emetic—
Hamburg, 2 cks.

Waste Salt—
Hamburg, 1,524 bgs.

White Lead—
Rotterdam, 142 cks. J. Rankine & Son

Zinc Sulphate—
Hamburg, 20 cks.

Zinc Sulphide—
Hamburg, 100 cks.

Zinc White—
Rotterdam, 50 cks. J. Rankine & Son

TYNE.

Week ending August 19th.

Limestone—
Antwerp, 2 crts. Tyne S. S. Co.

Paraffin Scale—
Hamburg, 85 brls.

Saltpetre—
Hamburg, 3 cks.

Tartaric Acid—
Rotterdam, 1 ck.

Ultramarine—
Rotterdam, 4 cks. Tyne S. S. Co.

White Lead—
Antwerp, 28 brls. Tyne S. S. Co.

Zinc Oxide—
Antwerp, 25 brls. Tyne S. S. Co.

GOOLE.

Week ending August 16th.

Alkali—
Calais, 4 cks.

Alum—
Rotterdam, 29 brls.

Benzol—
Rotterdam, 6 cs.

Carbonate of Lime—
Antwerp, 27 bgs.

Dyestuffs—
Alizarine
Rotterdam, 52 brls.

Extracts
Rouen, 50 cks.

Dyestuffs (otherwise undescribed)
Boulogne, 27 cks. 7 cs. 46 pkgs.

Farina—
Hamburg, 1,400 bgs.
Delfsryhl, 820

Glucose—
Hamburg, 3 cks.

Potash—
Rotterdam, 10 cks.
Antwerp, 7 40 dms.
Calais, 12

Saltpetre—
Hamburg, 24 cks.
Rotterdam, 100 bgs.

Soda—
Rotterdam, 55 brls.

Waste Salt—
Hamburg, 444 cks. 230 t.

Zinc Oxide—
Antwerp, 20 brls.

Zinc Sulphide—
Rotterdam, 5 brls.

GRIMSBY.

Week ending August 19th.

Chemicals (otherwise undescribed)
Hamburg, 7 cks.

Size—
Antwerp, 20 cks.
Hamburg, 2

Zinc Ashes—
Antwerp, 9 cks.

EXPORTS OF CHEMICAL PRODUCTS

OF

THE PRINCIPAL PORTS OF THE UNITED KINGDOM.

LONDON.

Week ending August 23rd.

Acids—		
M. Video,	10 cs.	£11
Cape Town,	4 kgs.	18
Alkali—		
Natal,	1 t.	£5
Frontera,	1	11
E. London,	12 c.	6
Alum—		
Adelaide,	2 t.	£13
Batoum,	50	295
Rabat,	2 7 c.	13
Ammonia (Liquid)—		
Dusseldorf,	4 c.	£31
Colmar,	5	28
M. Video,	8 cs.	16
Barbadoes,	6	16
Ammonium Carbonate—		
St. Petersburg,	6 c.	£11
Stettin,	16	20
Dunkirk,	5 cks.	30
Bordeaux,	10 pkgs.	41
Boulogne,	4	38
Ammonium Chloride—		
Hamburg,	1 t. 3 c.	£41
Ammonium Sulphate—		
Treport,	30 t.	£430
Hamburg,	51 3 c.	660
Sourabaya,	102 11	1,200
Arsenic—		
Amsterdam,	11 cks.	£31
Borax—		
Melbourne,	5 t.	£280
Hamburg,	6 cks.	46
Algoa Bay,	20 kgs.	35
Calcium Chloride—		
Fremantle,	10 drs.	£14
Carbolic Acid—		
Canterbury,	20 kgs.	£11
Philadelphia,	240 cks.	1,099
Treport,	100 cs.	106
Melbourne,	20 drs.	16
Caustic Soda—		
Natal,	6 c.	£12
Canterbury,	13	43
E. London,	1 t. 6	32
Chemicals (otherwise undescribed)		
Adelaide,	25 pkgs. 13 cs. 10 jars	£64
Fremantle,	2 kgs.	5
Gibraltar,	2	15
Canterbury,	15 c.	60
Melbourne,	1	13
Wellington,	10	10
Dunedin,	9	33
Bombay,	5	61
Auckland,	22	20
Citric Acid—		
Perth,	2 cs.	£19
Montreal,	6 c.	42
Kurrachee,	1	8
Rangoon,	1	9
Brussels,	5	40
Wellington,	1	9
Passages,	2 cks.	82
Oporto,	3	26
Coal Products—		
Alizarine		
Boston,	6 kgs. 20 cks.	£301
Lisbon,	2	40
Aniline Oil		
Ghent,	2 cks.	£75
Genoa,	10 drs.	300
Anthracene		
Rotterdam,	94 cks.	£535
Benzol		
Hamburg,	8 drs.	£80
Calais,	20 cks.	159
Treport,	12	122
Rotterdam,	116	450
Terneuzen,	25	200
Coal Tar Dyes		
Boston,	11 cks.	£213
Creosote		
Philadelphia,	8 cs.	£80
Dieppe,	15,400 glns.	160
Creosote Salts		
Philadelphia,	1,463 bgs.	£189
Naphtha		
Wellington,	20 drs.	£14
Dunedin,	20	14

Pitch		
Terneuzen,	748 t.	£1,051
Antwerp,	573	673
Rio de Janeiro,	25 brls.	16
Constantinople,	200	75
Philadelphia,	1,929 pkgs.	449
New York,	50 sks.	10
Boston,	1,250 cks.	603
Baltimore,	395	178
Tar		
Boston,	225 cks.	£100
Philadelphia,	250 rnlts.	115
Hamburg,	40	25
Stettin,	250 brls.	97
Tar Salts		
Algoa Bay,	3 cs.	£16
Copperas—		
Varna,	5 t. 19 c.	£11
Copper Sulphate—		
Paris,	10 t.	£171
Cream of Tartar—		
Adelaide,	2 t. 10 c.	£191
Brisbane,	1 5	99
Disinfectants—		
Otago,	9 cs.	£42
Alexandria,	25 cks.	175
Guano—		
Demerara,	50 t.	£575
Landerneau,	310	3,100
Trinidad,	5	56
Manure—		
Leghorn,	330 t.	£2,288
Genoa,	585	3,528
Passages,	3 17 c.	30
Gothenburg,	395 1	978
Pt. Elizabeth,	2 9	24
Harburg,	500	1,750
Rocheport,	409	1,870
Treport,	89 18	540
Charente,	99 14	600
Demerara,	50	500
Stettin,	98 10	350
Madeira,	3	24
Nitric Acid—		
Sydney,	10 cs.	£45
Oxalic Acid—		
St. Petersburg,	10 t. 2 c.	£261
Phosphoric Acid—		
Demerara,	10 t.	£166
Potash—		
M. Video,	1 ck.	£8
Potash Crystals—		
Melbourne,	1 t. 11 c.	192
Potash Salts—		
Auckland,	5 t.	£680
Potassium Chlorate—		
Santos,	10 c.	£38
New York,	10 t. 16	550
Saltpetre—		
Bahia,	4 t. 3 c.	£91
Natal,	5 10	12
Gibraltar,	5 1	101
Amsterdam,	2 1	45
Lisbon,	14 14	293
Melbourne,	1	22
Gothenburg,	1	21
Trinidad,	3 10	73
Varna,	1	21
Sheep Dip—		
Natal,	1 t. 16 c.	£75
Wellington,	18 cks.	114
Cape Town,	125 drs.	34
E. London,	1 3	53
Soda Crystals—		
Auckland,	1 t. 3 c.	£5
Cologne,	3	16
Sodium Arsenate—		
Algoa Bay,	11 t. 15 c.	£367
Sodium Bicarbonate—		
Auckland,	10 c.	£8
Marseilles,	9 t. 16	73
Trinidad,	15	6
Wellington,	10	4
E. London,	5	6
Penang,	12	8
Sodium Tartrate—		
Montreal,	1 t. 8 c.	£79
Oporto,	3	11
Sulphuric Acid—		
Santos,	8 cs.	£11
Delagoa Bay,	1 t. 5 c.	12
Natal,	45	45

Singapore,	1 5	13
Penang,	30	24
Sulphurous Anhydride—		
Batoum,	204 cs.	£435
Superphosphate—		
Passages,	45 t. 11 c.	£136
Libau,	96 15	290
Superphosphate of Lime—		
Barbadoes,	496 bgs.	£243
Tartaric Acid—		
Auckland,	5 c.	£27
Gisborne,	1 kg.	13
Natal,	1 cs.	6
Adelaide,	10	50
Hamburg,	4 cks.	101
Montreal,	17	78
Brisbane,	5	25
Melbourne,	2 t. 10	255
Canterbury,	5	27
Bombay,	3	24
Constantinople,	2	17

LIVERPOOL.

Week ending August 23rd.

Alum—		
Montreal,	3 t. 11 c.	£17
Ammonium Carbonate—		
Halifax,	1 t. 1 q.	£31
Vigo,	14 c. 1	22
Venice,	1	35
Ammonium Chloride—		
Santander,	10 c.	£17
Philadelphia,	1 t. 14 2 q.	37
Bilbao,	16 2	29
Montreal,	4 2	4
Trieste,	2 13	86
Smyrna,	1	34
Trebizonde,	11 2	20
Alexandria,	2 11 2	91
Alexandretta,	10	18
Ammonium Sulphate—		
Demerara,	10 t. 7 c. 2 q.	£132
Trinidad,	1	13
Copenhagen,	25	350
Sourabaya,	25 13	296
Samarang,	160	1,871
Cheribon,	81 18	1
Tagal,	67 12	3
Antwerp,	20 2 1	220
Passages,	19 8 2	280
Philadelphia,	5 1	72
Valencia,	70 10	944
Hamburg,	156 3 1	2,157
Asbestos—		
Demerara,	20 bgs.	
Iquitos,	1 cs.	
Barium Nitrate—		
Vigo,	4 c. 1 q.	£5
Bleaching Powder—		
Auckland,	14 brls.	
Baltimore,	232 cks.	
Boston,	596	
Calcutta,	177	
Corunna,	8	
Dunkirk,	37	
Genoa,	162	
Lisbon,	44	
Messina,	26	
New York,	95 539	
Rouen,	16	
Seville,	12	
Vigo,	4	
Wellington,	7	
Bombay,	8 cs.	
Havana,	30	
Montreal,	21	
Passages,	15	
Patras,	4	
Piræus,	7	
Rouen,	15	
Syria,	4	
Boracic Acid—		
Havre,	1 t. 1 c. 3 q.	£43
Kobe,	1 8 2	46
Borax—		
Stettin,	2 cks.	£20
B. Ayres,	4 c.	6
Stockholm,	1 t.	30
Bremerhaven,	5 2 q.	8
Hamburg,		
Havana,	6 3	185
Halifax,	2 19 3	89
Halifax,	7 2	11
Calcium Chloride—		
B. Ayres,	5 t. 2 c.	£11
New York,	10 5	26
Odessa,	14 17	33
Carbolic Acid—		
Reuen,	2 t. 16 c.	£176
Genoa,	9 3 q.	32
Hamburg,	1 18 3	30
Alexandria,	7 3	10
Antwerp,	7 3	10
Marseilles,	1 2	60
N. York,	5 cks. 13 2 1	713
Caustic Potash—		
New York,	7 t. 7 c.	£149
Caustic Soda—		
Adelaide,	60 dms.	
Alexandria,	5	
Antwerp,	32	
Bahia,	25 5 brls.	
Baltimore,	280	
Bilbao,	60	
Bombay,	19	
Brisbane,	60	
B. Ayres,	70	
Calcutta,	32	
Callao,	2	
Cartagena, N.G.	10	
Corfu,	30	
Dunedin,	40	
E. London,	20	
Fiume,	90	
Galatz,	1,162	
Genoa,	98	
Hiogo,	278	
Hong Kong,	35	
Honolulu,	55	
Leghorn,	35	
Lisbon,	7	
London, Ont.,	35	
Maranham,	2	
Melbourne,	62	
Messina,	26	
Montreal,	60	
New York,	749 15 bks.	
Odessa,	62	
Oporto,	58	
Patras,	10	
Pernambuco,	25	
Piræus,	30	
Progreso,	6	
Quebec,	40	
Rio de Janeiro,	93	
Santander,	30	
Seville,	462	
Shanghai,	58	
Stettin,	30	
Sydney,	125	
Talcahuano,	30	
Tocopilla,	10	
Tunis,	6	
Vigo,	15 10	
Wellington,	2	
Alicante,	15	
Almeria,	10	
Amsterdam,	138	
Barcelona,	200	
Boston,	100	
Caceres,	12	
Chicago,	100	
Cienfuegos,	15	
Havana,	60	
Manila,	80	
Pt. Elizabeth,	10	
Rouen,	35	
St. Stephens,	100	
Tampico,	200	
Tarragona,	30	
Tehuantepec,	30	
Valencia,	30	
Chemicals (otherwise undescribed)		
Naples,	3 t. 12 c.	£115
Hamburg,	1 4 3 q.	34
Larnaca,	4	7
Malaga,	9 3	16
Gothenburg,	1 19 3	67
Canada,	1 19 1	49
New York,	5 3	125
China Clay—		
Rio de Janeiro,	12 t.	
Bombay,	10	
Boston,	315 5 c.	

Chrome Ore—

Dunkirk, 19 cks.

Coal Products—**Aniline Colours**

Genoa, 2 kgs.

New York, 1 ck.

Aniline Oil

Genoa, 6 dms.

Hamburg, 21

Aniline Salts

New York, 76 cs. 39 brls.

Rouen, 5 cks.

Pitch

Galatz, 50 brls.

Sierra Leone, 25

Tar

Demerara, 30 brls.

Honolulu, 50

Pt. Natal, 500 dms.

Santander, 6 7 cks.

Copperas—

Kurrachee, 24 t. 2 c. 2 q. £15

Malaga, 5 3 10

Bombay, 33 17 2 54

Varna, 3 1 2 7

Copper Sulphate—

Catania, 5 t. 2 q. £80

Bombay, 5 81

Santos, 19 3 15

Kurrachee, 15 12

Constantinople, 1 5 18

Rotterdam, 1 12 1 25

Auckland, N.Z., 1 16

Bahia, 1 19

Rio de Janeiro, 14 10

N. Orleans, 10 151

Italy, 29 19 2 430

Rouen, 33 508

Naples, 22 10 2 313

Genoa, 3 15 3 55

Dunedin, N.Z., 1 5 18

Guano—

Stettin, 750 t. £2,036

Seville, 99 19 c. 253

Lime—

Attabo, 7 cks. £8

Demerara, 90 puns.

Magnesia—

Genoa, 1 cs.

Magnesium Sulphate—

Alexandria, 20 kgs.

Bombay, 160 bgs.

Guayaquil, 15 cs.

Manganese—

Algoa Bay, 10 t. 17 c.

Manure—

Havre, 193 t. 17 c. 2 q. £1,060

Valencia, 4 36

Nitrate of Lead—

Victoria, B.C., 4 t. 7 c. 3 q. £83

Ochre—

Maranham, 16 brls.

Paint—

Cabenda, 60 dms.

Calcutta, 28 pkgs. 80 kgs.

Gabo, 6

Malta, 3 cks. 4

Ponce, 3

Rio del Rey, 2

San Juan, P.R., 8

Vera Cruz, 11 cs. 4

Gibraltar, 4 dms.

Hamburg, 11

Maranham, 1

Montreal, 1

New York, 19

Opobo, 16

Para, 3 9

Port au Prince, 15 cs.

Port Said, 35

Rio de Janeiro, 16 65

St. John's, Nfld., 3 10

Savannah, 25

Singapore, 10

Painters' Colours—

Antwerp, 6 kgs.

Bahia, 12 6 brls.

Belize, 85

Bilbao, 12

B. Ayres, 60 cs. 30 cks. 100 kgs.

Cape Town, 3

Constantinople, 100

Galatz, 250

Genoa, 2 4 dms.

Gothenburg, 10 15 bgs.

Havana, 26

Honolulu, 42

Lille, 40

Lisbon, 40

Marseilles, 25

Montreal, 7 9 27

New York, 20 200

Para, 15 pkgs. 376 29 2 tcs.

Philadelphia, 10

Quitta, 2 cs.

Baltimore, 80 20

Halifax, 43

Nassau, 4

Valparaiso, 50

Victoria, S.A., 12

Paraffin Wax—

Syra, 11 pkgs.

Para, 25 cs.

Phosphorus—

Shanghai, 16 cs. £159

Hiogo, 16 189

Yokohama, 10 129

Kobe, 56 575

Potassium Bicarbonate—

M. Video, 11 c. 1 q. £24

Potassium Bichromate—

Alexandria, 9 c. £18

Yarmouth, N.S., 7 2 q. 17

Bahia, 10 23

Rio de Janeiro, 1 t. 3 1 48

Potassium Carbonate—

New York, 6 t. 11 c. £107

Potassium Chlorate—

Copenhagen, 5 t. £299

Boston, 10 576

St. Petersburg, 10 799

Stettin, 2 c. £6

Stockholm, 3 10 238

Randers, 1 56

Genoa, 1 5 81

Yokohama, 7 10 466

Kobe, 3 189

B. Ayres, 2 112

Vigo, 6 23

Hamburg, 2 10 155

Cape Town, 1 63

Shanghai, 4 270

Carthage, N.G., 1 6 2 q. 72

Hiogo, 30 2,049

Rotterdam, 1 56

Antwerp, 2 128

New York, 16 921

Gutajewsky, 3 188

Gothenburg, 8 491

Potassium Oxalate—

Boston, 11 t. 7 c. 3 q. £275

Potassium Prussiate—

Montreal, 3 c. 1 q. £14

Potassium Stannate—

Bombay, 2 t. 5 c. 2 q. £178

Rosin—

Galatz, 30 cks.

Rosin Oil—

Galatz, 60 brls.

Salt—

Akassa, 400 t.

Amsterdam, 224

Antwerp, 175 2 c.

Bonny, 23

B. Ayres, 30

Calcutta, 4,978

Cameroons, 70 5

Demerara, 84 10

E. London, 27 17

Ghent, 100

Honolulu, 15

Montreal, 578

Natal, Br. 605 7

Old Calabar, 100

Rio del Rey, 20

Buguma, 25

De Gama, 26

Gr. Bassam, 10 5

Iceland, 275

Loango, 16

M. Video, 7 15

New York, 260

Sydney, 2 3

Salt Cake—

Oporto, 4 t. £8

Gijon, 55 5 c. 3 q. 130

Ghent, 90 77

Saltpetre—

B. Ayres, 2 t. 3 c. 2 q. £50

Pernambuco, 1 8 2 33

Gr. Canary, 1 20

Sheep Dip—

M. Video, 3 t. 6 c. £71

Soap—

Accra, 5 cs. 50 bxs.

Alexandria, 35 12

Algoa Bay, 25 535

Assinee, 70

Barbadoes, 1,307

Benin, 300

Bombay, 62 200 46 brls.

Bonny, 50

B. Ayres, 1

Calcutta, 66 500 1,000 bdls.

Cameroons, 125

C. C. Castle, 1 130

Cape Town, 1,000

Constantinople, 400 4 cs.

Curacao, 147

Demerara, 4,763

Durban, 250

E. London, 851 25

Gibraltar, 500

Gr. Bassam, 100

Gr. Canary, 25

Iquique, 4

Kingston, Jam, 100

Kurrachee, 750 1

Lagos, 210 1

Las Palmas, 660

Leghorn, 20

Malta, 73 21 pkgs.

N. Orleans, 725

New York, 607 110

Old Calabar, 500

Para, 80 1

Penang, 200 5

Pt. Natal, 389 40 dms.

Quebec, 2

Quitta, 40

Rangoon, 1,207 5

St. John's, Nfld., 490

Shanghai, 630

Teneriffe, 555

Zurich, 245

Auckland, 100

Belize, 500

Brussels, 400

Christchurch, 100

Dixcove, 3

Genoa, 100

La Guayra, 1

Pt. Elizabeth, 15

St. Lucia, 38

San Fernando, 200

Savanilla, 2

Singapore, 50 kgs

Trieste, 4

Soda Alkali—

Charkow, 35 brls

Constantinople, 35

Corfu, 50

Leghorn, 60

Montreal, 50

Toronto, 23

Soda Ash—

Bahia, 10 cks.

Baltimore, 117

Boston, 158 tcs. 3,423 bgs.

Brisbane, 173 1,700

B. Ayres, 50 579 brls.

Calcutta, 56

Corfu, 200 120 kgs.

Ghent, 20

Havana, 3 cs 2

Montreal, 74 tcs. 200

N. York, 309 199 2,876

Oporto, 61 5

Rio de Janeiro, 200

Smyrna, 120

Syra, 50

Toronto, 33 tcs 80

Trieste, 4 80

Vigo, 6

Yokohama, 8 75

Antwerp, 8 550

Barcelona, 65

Genoa, 20

Gothenburg, 400

Hamburg, 13

Kobe, 100

Malta, 8

Maranham, 10

Philadelphia, 1,000 250 tcs.

Rotterdam, 100

Stettin, 300

Sydney, 30

Venice, 16 80

Soda Crystals—

Batavia, 15 cks.

Bellville, 20 brls.

Boston, 364

Hiogo, 10

Montreal, 56 100 kgs.

New York, 190 56

Pt. Natal, 40

Santos, 5

Calcutta, 33

Cape Town, 17

Charlotte Town, 50

M. Video, 20

Sodium Arsenate—

New York, 8 cks.

Sodium Biborate—

Antwerp, 30 cks.

Hamburg, 40

Havre, 10 cs

Montreal, 150 kgs.

Rio de Janeiro, 1 brl.

Sodium Bicarbonate—

Adelaide, 150 kgs. 25 bgs.

Alexandria, 30

Bellville, 100

Bleaching Powder—

Ala,	66 cks.
Boston,	86
Stettin,	3

Borax—

Antwerp,	10 cs. 16 cks.
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Caustic Soda—

Helsingfors,	16 dms. 5 cks.
Lissa,	132
Riga,	267
Wyburg,	1

Chemicals (otherwise undescribed)

Antwerp,	11 cs.
Amsterdam,	16 pks.
Bremen,	2 20
Copenhagen,	8 6 135 cks.
Christiania,	5 15 40 kgs.
Flushing,	29
Gothenburg,	10
Ghent,	1
Hamburg,	57 28 4
Konigsberg,	4
Lissa,	8
New York,	60
Rotterdam,	41 16 74
Riga,	100 1
St. Petersburg,	15
Stettin,	8 48
Wyburg,	4

Cottonseed Oil—

Antwerp,	403 c.
Amsterdam,	14
Bremen,	202
Bergen,	17
Copenhagen,	107
Flushing,	100
Gothenburg,	100
Hamburg,	1,472
Rotterdam,	1,723
Stettin,	71
Stavanger,	41

Cresote—

Christiania,	30 cks.
Dunkirk,	100
Hamburg,	2

Dyestuffs (otherwise undescribed)

Boston,	5 cks.
Christiania,	2 135 bls.
Flushing,	2 dms.
Hamburg,	1 cs.
Reval,	3
Stettin,	6

Linseed Oil—

Antwerp,	86 c
Bergen,,	43
Christiansund,	17
Christiania,	555
Drontheim,	117
Hango,	52
Helsingfors,	172
Rotterdam,	52
Stavanger,	133

Logwood—

Stettin,	80 bls.
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Mineral White—

Antwerp,	50 bgs.
Rotterdam,	300 bls.

Naphtha—

Antwerp,	10 cks.
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Ochre—

Amsterdam,	7 cks.
Bergen,	3

Painters' Colours—

Antwerp,	4 cs. 35 cks. 1 pkg.
Amsterdam,	31
Ala,	4
Bremen,	4
Boston,	75 50
Berges,	3 148 60 dms.
Copenhagen,	6
Christiania,	4 148 36
Dunkirk,	13
Drontheim,	5 20
Flushing,	1
Gothenburg,	18 2
Hamburg,	1 7 1
Harlingen,	1
Konigsberg,	1
New York,	54
Rotterdam,	4 2 10 10 pks.
Rouen,	7
St. Petersburg,	186
Stettin,	36
Uleaborg,	6
Wyburg,	2

Pitch—

Antwerp,	470 t.
Dunkirk,	80

Soap—

Gothenburg,	3 pks.
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Superphosphate—

Aarhus,	284 t.
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Tallow—

Gothenburg,	5 cks.
Rotterdam,	19

Tannin—

Rouen,	10 cks.
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Tar—

Amsterdam,	6 cks
Abo,	150
Bergen,	4
Copenhagen,	6
Rotterdam,	5
Stettin,	1 cs.

Yarnish—

Antwerp,	2 cs. 1 ck.
Copenhagen,	2 2 cans.
Hamburg,	2
Harlingen,	2
Rotterdam,	3
Rouen,	1 1

GLASGOW.

Week ending August 24th.

Ammonium Sulphate—

Demerara,	22 t.	£370
Barbadoes,	25	333
France,	173 12 1/4 c.	2,177

Bleaching Powder—

Melbourne,	6 t. 1 1/2 c.	£60
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Borax—

Seville,	2 t. 5 c.	£60
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Castor Oil—

Gibraltar,	1 t. 1/2 c.	£26
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Chloride of Lime—

New York,	15 1/2 c.	£80
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Coal Products—**Cresote Oil**

Christiania,	20 brls.	£10
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Pitch

Oporto,	25 t. 6 1/2 c.	£30
Quebec,	22 16	35
Boston,	30 7	65
New York,		414

Tar

Madras,		£47
Calcutta,		98
Boston,	36 t. 15 c.	78
St. John's, N.F.,	50 brls. 60 hf.-brls.	£17

Copperas—

Bombay,	17 t. 3 c.	£30
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Cottonseed Oil—

Demerara,		£91
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Colours—

Cape Colony,	17 1/2 c.	£25
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Dextrine—

Melbourne,	1 t.	£20
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Dyestuffs—

Alizarine		£77. 15s.
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Extracts

Montreal,		£69
Barcelona,	1 t. 15 3/4 c.	49

Logwood

Oporto,	2 t. 5 c.	£21
Barcelona,	8 18 1/4	93

Dyestuffs (otherwise undescribed)

St. John's, Nfld.,	1 t. 8 3/4 c.	£40
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Kelp Salt—

Kastrop,	212 t.	
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Linseed Oil—

Colombo,	500 glns.	£50
Calcutta,	2,000	180
Cape Colony,	13 c.	£20. 14s.

Manganese—

Rotterdam,	21 cks.	£100
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Manure—

Trinidad,	6 t. 10 c.	£20
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Paint—

Calcutta,	31 t. 1 c.	£477
Barbadoes,	1 13	31
Demerara,	1 10	33
Hong Kong,	8	124
Bombay,	5 9	35
New York,	1 8 1/4	43
B. Ayres,		380
St. John's, Nfld.,	3 cks.	32

Painters' Colours—

Calcutta,		£89
Trinidad,		112
Demerara,		78
Cape Colony,		34
Rotterdam,	1 ck.	5

Paraffin Wax—

Italy,	43 t. 16 c.	£1,376
France,	1 1 1/4	38
Rouen,	1 17	53
Barcelona,	1 13 1/4	51

Potassium Bichromate—

Italy,	9 t. 18 c.	£368
Montreal,	10 12 1/4	425
Rouen,	1 12 1/2	64
Japan,	1 1 1/4	419
Boston,	8 13	306

Potassium Prussiate—

Barcelona,	8 t. 19 1/4 c.	£620
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Salt—

Demerara,	37 t.	£62
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Soap—

St. John's, N.F.,	2 t. 15 c.	£50
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Sodium Bichromate—

Rouen,	18 t. 18 1/2 c.	£608
Antwerp,	20 1 1/2	642

Sulphuric Acid—

Madras,	18 t. 2 1/2 c.	£140
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Tallow—

Rotterdam,	4 t. 15 c.	£150
Antwerp,	2 12	46

Turpentine—

Singapore,	13 1/2 c.	£24. 10s.
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Varnish—

Trinidad,		£41
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White Lead—

Trinidad,		£35. 15s.
Demerara,	1 t. 7 c.	26 10
Cape Colony,	1	£22
Oporto,	21 14	273
Bombay,	3	44

TYNE.

Week ending August 19th.

Alkali—

Christiania,	6 t. 7 c.	
Rotterdam,	5 16	
Amsterdam,	24 10	

Ammonia Alkali—

Gothenburg,	10 t. 5 c.	
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Ammonium Carbonate—

Odessa,	3 t.	
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Ammonium Chloride—

Odessa,	3 t. 4 c.	
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Ammonium Phosphate—

Venice,	19 t. 14 c.	
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Ammonium Sulphate—

Antwerp,	50 t.	
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Antimony—

Hamburg,	3 t.	
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Arsenic—

Venice,	6 t. 6 c.	
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Asbestos—

Antwerp,	24 lbs.	
Copenhagen,	1/4 c.	

Barium Carbonate—

Hamburg,	102 t. 10 c.	
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Barium Hydrate—

Antwerp,	50 t. 7 c.	
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Barytes—

Rouen,	25 t.	
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Blanc Fixe—

Copenhagen,	8 c.	
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Bleaching Powder—

Antwerp,	57 t. 12 c.	
Christiania,	20 6	
Odessa,	20 5	
Copenhagen,	2 2	
Rotterdam,	4 5	
Amsterdam,	20 5	
Venice,	39 15	
Gothenburg,	11	
Ancona,	17 9	
Lisbon,	35 3	

Calined Magnesia—

Genoa,	14 c.	
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Caustic Soda—

Odessa,	152 t. 7 c.	
Antwerp,	7 2	
Hamburg,	20 6	
Rouen,	3 9	
Rotterdam,	5 3	
Amsterdam,	15 16	
Venice,	36 17	
Gothenburg,	55 2	
Ancona,	8 14	
Genoa,	81 12	
Constantinople,	11 6	
Melbourne,	5 5	

Colours—

Rotterdam,	8 c.	
Sydney,	3	

Litharge—

Antwerp,	4 t. 4 c.	
Rouen,	10 5	
Odessa,	4 18	

Magnesia—

Hamburg,		19 c.
Odessa,	2 t.	5
Rotterdam,		14
Genoa,	1	17

Magnesium Carbonate—

Genoa,	9 c.	
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Magnesium Sulphate—

Constantinople,	10 c.	
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Manure—

Stettin,	480 t. 1 c.	
Pernau,	303	11

Ochre—

Christiania,	15 c.	
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Paint—

Antwerp,	22 dms. 2 c.	
Hamburg,	3 t. 3	
Sydney,	1	

Phosphorus—

Genoa,	1 t. 12 c.	
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Pumice Stone—

Hamburg,	1/4 c.	
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Soda—

Antwerp,	10 t. 15 c.	
Christiania,	7	
Sydney,	31	10
Rotterdam,	28	11
Ancona,	10	10
Genoa,	3	2
Constantinople,	2	13
Lisbon,	5	5

Soda Ash—

Antwerp,	10 t.</
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PRICES CURRENT.

WEDNESDAY, AUGUST 30th, 1893.

PREPARED BY MESSRS. HIGGINBOTTOM AND CO., 116, PORTLAND STREET, MANCHESTER.

The values stated are F.O.R. at maker's works, or at usual ports of shipment in U.K. The price in different localities may vary.

Acids:—				£	s.	d.					£	s.	d.
Acetic, 25 % and 40 %	per cwt.	7/-	&	10/6	Lime, Acetate (brown)	per ton	5	17	6				
" Glacial	"	"	"	50/-	" (grey)	"	"	10	0				
Arsenic S.G., 2000°	"	"	"	0 14 6	Magnesium (ribbon and wire)	per oz.	0	2	3				
Fluoric	per lb.	0	0	3 3/4	" Chloride (ex ship)	per ton	2	7	6				
Muriatic (Tower Salts), 30° Tw.	per bottle	0	0	10	" Carbonate	per cwt.	1	17	6				
" (Cylinder), 30° Tw.	"	0	3	0	" Hydrate	per ton	17	0	0				
Nitric 80° Tw.	per lb.	0	0	1 3/4	" Sulphate (Epsom Salts)	per ton	2	19	0				
Nitrous	"	"	"	0 1 3/4	Manganese, Sulphate	"	"	17	15				
Oxalic	nett	"	"	0 0 3	" Borate	per cwt.	2	12	6				
Phosphoric, 1750°	"	"	"	0 1 2 1/2	" Ore, 70 %	per ton	4	5	0				
Picric	"	"	"	0 1 0	Methylated Spirit, 61° O.P.	per gallon	0	2	0				
Sulphuric (fuming 50 %) ..	per ton	15	10	0	Naphtha (Wood), Solvent	"	0	3	6				
" (monohydrate) ..	"	5	10	0	" Miscible, 60° O.P.	"	0	4	0				
" (Pyrites, 168°) ..	"	3	0	0	Oils:—								
" " 150° ..	"	1	5	0	Cotton-seed..	per ton	23	0	0				
" (free from arsenic, 145°) ..	"	1	6	0	Linseed ..	"	22	15	0				
Sulphurous (solution) S.G. 1025 ..	"	3	0	0	Lubricating, Scotch, 890°—895° ..	"	7	5	0				
Tannic (pure) ..	per lb.	0	1	2	Petroleum, Russian ..	per gallon	0	0	4				
Tartaric ..	"	0	0	11 1/2	" American ..	"	0	0	5 1/2				
Arsenic, white powdered ..	nett	per ton	13	15	0	Potassium (metal) ..	per oz.	0	3	7			
Alum (loose lump) ..	"	"	5	2	6	" Bichromate ..	per lb.	0	0	4 1/2			
Alumina Sulphate (pure) ..	"	"	5	0	0	" Carbonate, 90% (ex ship) ..	per ton	16	15	0			
Aluminoferic ..	"	"	2	10	0	" Chlorate ..	per lb.	0	0	7 1/2			
Aluminium ..	per lb.	0	4	0	" Cyanide, 98% ..	"	0	2	0				
Ammonia, Anhydrous ..	"	"	0	1	2	" Hydrate (Caustic Potash) 80/85 % ..	per ton	21	10	0			
" " 880=28° ..	per lb.	0	0	3	" " (Caustic Potash) 75/80 % ..	"	20	10	0				
" " =24° ..	"	"	0	0	2 1/4	" " (Caustic Potash) 70/75 % ..	"	20	0	0			
" Carbonate ..	nett	"	0	0	3 3/4	" Nitrate (refined) ..	per cwt.	1	2	6			
" Muriate ..	per ton	23	10	0	" Permanganate ..	per cwt.	3	5	0				
" " (sal-ammoniac) 1st & 2nd ..	per cwt.	37/-	&	35/-	" Prussiate Yellow ..	per lb.	0	0	9				
" Nitrate ..	per ton	42	0	0	" Sulphate, 90 % (ex ship) ..	per ton	9	15	0				
" Phosphate ..	per lb.	0	0	10 1/2	" Muriate, 80 % (do.) ..	"	8	0	0				
" Sulphate (grey) London ..	per ton	14	17	6	Silver (metal) ..	per oz.	0	2	10 1/2				
" " (grey) Hull ..	"	14	17	6	" Nitrate ..	"	0	2	10				
Aniline Oil (pure) ..	per lb.	0	0	6	Sodium (metal) ..	per lb.	0	3	4				
Aniline Salt ..	"	0	0	5 1/2	" Carb. (refined Soda-ash) 48 % ..	nett	per ton	5	10	0			
Antimony ..	per ton	45	10	0	" " (Caustic Soda-ash) 48 % ..	"	4	10	0				
" (tartar emetic) ..	per lb.	0	1	0	" " (Carb. Soda-ash) 48 % ..	"	4	10	0				
" (golden sulphide) ..	"	0	0	10	" " (Carb. Soda-ash) 58 % ..	"	4	10	0				
Barium Chloride ..	per ton	7	10	0	" " (Soda Crystals) ..	"	2	17	6				
" Carbonate (native) ..	"	"	3	10	0	" Acetate (ex-ship) ..	"	16	0	0			
" Sulphate (native levigated) ..	"	45/-	to	75/-	" Arseniate, 45 % ..	"	12	0	0				
Bleaching Powder, 35 % ..	nett	"	8	10	0	" Chlorate ..	per lb.	0	0	8 1/2			
" Liquor, 7 % ..	"	"	3	10	0	" Borate (Borax) ..	net, per ton	29	0	0			
Bisulphide of Carbon ..	"	"	11	15	0	" Bichromate ..	per lb.	0	0	3 1/4			
Chromium Acetate (crystal) ..	per lb.	0	0	6	" Hydrate (77 % Caustic Soda) (f.o.b.) net pr. (on lots) ..	"	11	10	0				
Calcium Chloride ..	per ton	2	5	0	" " (74 % Caustic Soda) ..	"	11	0	0				
China Clay (at Runcorn) in bulk ..	"	"	17/6	to	35/-	" " (70 % Caustic Soda) ..	"	10	0	0			
Coal Tar Products and Dyes:—													
Alizarine (artificial) 20 % ..	net	per lb.	0	0	8	" " (60 % Caustic Soda) ..	"	9	0	0			
Magenta ..	"	"	0	3	9	" " (60 % Caustic Soda, cream) (f.o.b.) ..	"	8	15	0			
Anthracene, 30 % A, f.o.b. London ..	per unit	per cwt.	0	1	2	" Bicarbonate ..	"	6	10	0			
Benzol, 90 % nominal ..	per gallon	0	1	5	" Hyposulphite ..	"	6	10	0				
" 50/90 ..	"	"	0	1	5	" Manganate, 30% ..	"	16	0	0			
Carbolic Acid (crystallised 40°) ..	per lb.	0	0	6 1/2	" Nitrate (95 %) ex-ship Liverpool ..	per cwt.	0	9	9				
" (crude 60°) ..	per gallon	0	1	7	" Nitrite, 98 % ..	per ton	29	0	0				
Creosote (ordinary) ..	"	"	0	0	1	" Phosphate ..	"	15	0	0			
" (filtered for Lucigen light) ..	"	"	0	0	1 1/4	" Prussiate ..	per lb.	0	0	7			
Crude Naphtha 30 % @ 120° C. ..	"	"	0	0	7	" Silicate (glass) ..	per ton	5	7	6 1/2			
Grease Oils, 22° Tw. ..	per ton	2	5	0	" " (liquid, 100° Tw.) ..	"	4	5	0				
Pitch, f.o.b. Liverpool or Garston ..	"	1	5	0	" Stannate, 40 % ..	per cwt.	3	0	0				
Solvent Naphtha, 90 % at 160° ..	per gallon	0	0	11	" Sulphate (Salt-cake) ..	per ton.	1	4	0				
" Lucigen" and " Wells Oils ..	"	"	0	0	1 1/4	" " (Glauber's Salts) ..	"	1	10	0			
Copper ..	per ton	41	15	0	" Sulphide ..	"	8	10	0				
" Sulphate ..	"	15	10	0	" Sulphite ..	"	5	15	0				
" Oxide (copper scales) ..	"	40	0	0	" Strontium Hydrate, 100% ..	"	8	10	0				
Glycerine (crude) ..	"	13	0	0	" Sulphocyanide Ammonium, 95 % ..	per lb.	0	0	7				
" (distilled S.G. 1250°) ..	"	43	0	0	" " Barium, 95 % ..	"	0	0	3 1/4				
Iodine ..	nett, per oz.	0	0	9	" " Potassium ..	"	0	0	7				
Iron Sulphate (copperas) ..	per ton	1	12	6	Sulphur (Flowers) ..	per ton.	8	0	0				
" Sulphide (antimony slag) ..	"	2	0	0	" " (Roll Brimstone) ..	"	6	10	0				
Lead (sheet) for cash ..	"	11	2	6	" Brimstone: Best Quality ..	"	4	2	6				
" Litharge Flake (ex ship) ..	"	13	0	0	Superphosphate of Lime (26 %) ..	"	2	7	6				
" Acetate (white ") ..	"	25	15	0	Tallow ..	"	27	10	0				
" " brown ") ..	"	17	10	0	Tin (English Ingots) ..	"	83	10	0				
" Carbonate (white lead) pure ..	"	20	0	0	" Crystals ..	per lb.	0	0	6				
" Nitrate ..	"	20	0	0	Zinc (Spelter) ..	per ton	17	2	6				
					" Chloride (solution, 96° Tw.) ..	"	5	15	0				

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Notices.

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Reports, and correspondence on all matters of interest to the chemical and allied industries, home and foreign, are solicited. Contributors should condense their matter as much as possible, on one side only of the paper, and in all cases give their names and addresses, not necessarily for publication. Sketches should be on separate sheets.

Contributors will oblige by making their remittances for subscriptions by Post Office Order, crossed and payable to "Davis Bros."

Communications for the Editor, if intended for insertion in the next issue, should reach the office not later than **Tuesday** evening.

Contributors are invited to forward items of intelligence, or cuttings from newspapers, of interest to the trades concerned.

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Advertisements intended for insertion in the current week's issue should reach the office by **Wednesday morning** at the latest.

EXPERIENCE.

"Greatly his foes he dreads, but more his friends.

He hurts me most, who lavishly commends."—*Churchill*.

THE purification of sewage, and perhaps also of trade effluents, is a subject that has lately come to the front; not because the evil doers have realized the enormity of their crimes, but being pressed by Sanitary Boards and Joint River Committees, a crop has been raised of sellers of patent nostrums, who are perforce obliged to push their wares "by hook or by crook."

The public are usually apathetic in most matters of great public utility. John Bull is fond of high sounding and mysterious names; a common every-day term is not to his fancy, and this little idiosyncrasy causes him to be preyed upon to his heart's content. This failing, however, is not confined to sewage treatment, but it has come before us more strongly in this connection, during the past few weeks, than perhaps on any other occasion. At the same time, we must congratulate the rising generation of chemists upon their wonderful progress in all matters appertaining to the chemistry of sewage. The amount of knowledge they sometimes display, when they rush into print to air their views, is enough to take the wind out of the sails of those "old stagers," who have been going on in their own quiet way for perhaps half a century, and who possibly have been amassing experience during the whole of that time. It seems, nowadays, only necessary for a young chemist to have been in a works where some special precipitant for sewage has been manufactured, to induce him to mount the rostrum, and declare:

"I am Sir Oracle, and when I open my mouth let no dog bark."

We have already noted the apathy of the public in most matters of general concern, so that when a technical correspondence is discovered in the daily press it may be taken for granted, without fear of being mistaken, that some interested person is at the bottom of it, especially if he writes under a *nom de plume*. This is more particularly illustrated by a correspondence that has been going on during the past few weeks in the Manchester daily press.

Most of our readers will have learned that several sewage processes have been experimented upon within the precincts of the Salford sewage works (by the patentees and others at their own expense) during the years 1890-93, and that a report upon them has been presented to the Salford Rivers Committee by the Borough Analyst. A contemporary published an abstract of this report, before it had been considered by the Committee, and a most unfair statement was allowed to be circulated by the press that this premature publication had been effected by the aid of the Borough Analyst. It seems, however, that the publication was effected through the aid of Mr. Councillor Davies, and we are surprised that he did not exercise more care that a full abstract should appear, and not be responsible for a mere "puff" of two out of the many processes that had been

tried, the remainder being consigned to oblivion. Naturally, those who were left out in the cold imagined that there was something rotten in the state of Denmark, and thus commenced a newspaper correspondence.

Mr. Hamor Lockwood, whose process has been used for some weeks upon the whole of the Salford sewage, had succeeded in reducing the albuminoid ammonia from 2.86 parts to 0.25 parts per 100,000, and credible witnesses are able to testify that the clarified effluent was passing away at the rate of ten millions of gallons per day, while most of the other experiments were merely trials of a few thousand gallons, in specially constructed tanks. This statement of fact evidently did not please some of his rivals, several of whom have appeared as correspondents behind a *nom-de-plume* armour, and they have endeavoured to cast some doubt upon the accuracy of the report upon which Mr. Lockwood bases his contentions, by drawing a red herring across the path.

Those who thoroughly understand the details of sewage treatment will not require to be told "that it is absolute nonsense to say that any precipitant can remove 90 per cent. of the albuminoid ammonia from the settled sewage." The italics are our own, but the words are from one R. J. Flintoff, who poses as a sewage authority in the pages of the *Manchester City News*. We suppose Mr. Lockwood and his process will survive the onslaught of this doughty champion, but we would like to ask him what are his qualifications to pose as an authority on sewage precipitation, and how many analyses he made prior to 1892, or before the firm to which he is attached began to manufacture sewage precipitants.

Mr. Flintoff has based his letter to the press on several erroneous assumptions, and the whole fabric he has built upon such an insecure basis, falls like a pack of cards when submitted to rigid enquiry.

The correspondent in question commences a paragraph with these words:—"Chemists of any experience in the precipitation of sewage," leading his reader to infer that he possesses that experience, but he does not tell them how it came to pass that a certain sanitary authority using his firm's chemicals, under his own instructions, were prosecuted for not producing a satisfactory effluent, and how the two chemical advisers to that sanitary authority recommended that resistance should not be made to the application for an order to compel them to put down other apparatus to ensure a satisfactory purification.

Much has been said in the afore-mentioned correspondence about the analysis of sewage. Our opinion is that the chemist who talks of the practicability of merely settling raw sewage on a large scale, has mistaken his vocation; he should don the cap and bells and seek the sphere of existence for which his new dress specially fits him. The report of the analysis of a sample of sewage should state the whole of the constituents present therein, and a sample should no more be "settled" than should a sample of milk sent to the analyst for the same purpose. What would be said of the analyst who allowed a sample of milk to "settle," and who afterwards analysed the top layer in the farmer's interest and the lower layer in the consumer's interest? Mr. Flintoff is no doubt a chemist of all the virtues, but before he attacks the *bona-fides* of other chemists he should remember that the public distrusts the evidence of interested parties, especially when by inuendo a doubt is cast over their results. The final paragraph of the letter already quoted contains the following statement:—"I venture to think that the Lockwood precipitant would compare very un-

favourably with a certain other that has been subjected to very extensive and exhaustive trials."—If "a certain other" Mr. Flintoff refers to the production of our own firm, we will be willing to find a place in our column for the whole of the reports of the Salford Borough and thereon, if he will send them to us. We stipulate for the whole of them, as we do not wish the reports "settled," we should then not be able to judge whether or no the Lockwood method or the "certain other" was the better of two.

THE MANUFACTURE OF BLEACHING POWDER

THE difficulties attending the manufacture of bleaching powder, during the summer for instance, owing to the variations in the temperature of the chlorine gas on its entrance to the chambers, are familiar to those who are in any way acquainted with the details of the manufacture of this commodity. An apparatus has been devised by Ferdinand Harter in view of obviating these difficulties and obtaining a gas of constant temperature at all times. The improvement also provides for desiccation of the chlorine.

The invention is not restricted to particular apparatus, but following is specified as suitable for attaining the object of the process. Down a tower packed with coke, sulphuric acid is allowed to trickle, the same being supplied from a reservoir placed at the top of the tower, where also distributors to spread the vitriol evenly are situated. A dilute acid which collects at the bottom of the tower is removed by siphon attachment and concentrated for re-use. Situated at the top of the tower is an apparatus which serves as a refrigerator or heat exchanger, the case may be. In cooling the gas, the pipes around which it passes in its passage through the refrigerator are filled with a solution of refrigerated brine, which after cooling the gas finds its way to a tank placed in the vitriol tank at the top of the tower. In winter water is circulated instead of brine. The gas having been brought to an even temperature is then passed straight to the absorbing chamber having first passed up the drying tower and from thence through the refrigerator, and thereby dried and cooled. The internal parts of the vessels are, of course, either lined with lead or formed of earthenware.

HOW TO STOP RIVER POLLUTION.

THIS is the title of an article which appears in the *Contemporary Review* for this month, and which is contributed by Frank Spence. The article in many ways is a good one, and it is pleasing to note in general tone it confirms the opinions which have been advocated in this *Journal* for years whenever an opportunity presented itself. Stated in this article, is it foolish to expect much from local authorities when, as in many cases, the members of the same are individual polluters. The main drift of the article is in favour of placing sewage works under inspection, in the same way as chemical works are inspected under the Alkali Acts. The Local Government Board has succeeded most successfully in stopping air pollution, and there is every reason to suppose that similar success would attend their efforts to stop river pollution, if the same lines of procedure were adopted. The writer points out that under the Alkali Acts nearly as many as five thousand tests of what we might call gaseous effluents have been made during the past year. We should like to know how many sewage effluents say in the last four years, have been tested by the Local Government Board? The idea, as put forward by the writer, works out in a feasible manner, and undoubtedly if the Local Government Board would only insist upon good effluents being obtained, no matter what the cost, instead of specifying processes which are more or less obsolete, and in many cases impracticable, thereby affording a loophole, and excusing procrastination on the part of local sanitary authorities, whose members are at the best tardy, we should doubtless begin to see some improvement in our rivers. The article goes on to show that the Local Government Board has the necessary power to extend inspection in this direction under the Public Health Act of 1875, and further points out that the Board has the power to hold inquiries and to order the payment of the cost of such inquiries out of the rates. From this it is obvious that the Corporations and other authorities would for their own reputations' sake be only too anxious to do that which lies in their power to obviate the necessity for such inquiries. The delay which is causing such trouble to the Mersey and Irwell Joint Committee through plans having to be passed by the Board, would, as indicated in this article, be conspicuous by its absence. Any, or such process as was suited to the peculiarities of the particular situation could be adopted by the local authorities,

would have but one aim and object, namely, to turn out an effluent that would satisfy the Local Government Board. How the necessary extensions might and could be made, the writer in due course points out, and, in fact, the further the matter is gone into, the more desirable does it seem that steps should be taken to prevail on the Local Government Board to alter their *modus operandi* as speedily as possible. This attempt, we trust, will in due course be made with, we will hope, satisfactory results, though we can without compunction say that, in our opinion, if the late Dr. Angus Smith had been alive there would not have been any need for taking such a course, for in Dr. Angus Smith the Local Government Board had a practical chemist, and the place which he left vacant has really never been filled.

Our Book Shelf.

EXPERIMENTS ON AIR, by H. Cavendish, 1784, 52 pp. Reprinted, Edinburgh: W. F. CLAY, 1893. 1s. 8d.

Under this heading we have two papers read by Cavendish in 1784 and 1785, containing much information about his investigations into the composition of water. The book constitutes the third of the reprints of the Alembic Club.

The first of these reprints was, it will be remembered, noticed a few months back in these columns, and the one at present under review is quite as interesting as the first of the series. These papers are now of considerable historic value and of great interest in their bearing on what was at that time known as the "Water Controversy," being the discussion connected with the first discovery of the composition of water.

The interest of the first of the two papers is considerably enhanced by the paragraphs added by Cavendish after the reading of his paper, and also the interpolations of Sir C. Blagden, his secretary, being indicated in the preface, and so distinguished from the original paper.

The second paper read a year later contains an account of the discovery of the composition of nitric acid. Although close on 110 years have elapsed since the reading of these papers, they will, we think, be appreciated by the chemists of to-day, who read them.

PROSPECTUS OF CLASSES OF THE VICTORIA UNIVERSITY. 94 pp. Manchester: The Owens College, 1893.

This prospectus gives a list of the day classes to be held at the Owens College during the 1893-4 session, in Science, Art, Literature, Law, and Engineering. It also contains particulars of the halls where the students can reside. The courses prescribed for the various faculties, or science, arts, law, medicine or music, are likewise duly set forth, particulars of the classes referred to being found in the subsequent portion of the prospectus, towards the end of which there is a list of fellowships, scholarships, and exhibitions open for competition for the session of 1893-94.

OZONE: ITS COMMERCIAL PRODUCTION AND APPLICATIONS.—By Emile Andreoli. 89 pp., with Index. London: H. Alabaster Gatehouse and Co., 1893. 1s. 8d.

This brochure reviews first of all the controversy which followed the announcement of Schönbein in 1840 of a new substance which he called ozone. The discussion of the composition of this body continued for fifteen years, when Andrews showed that it contained neither hydrogen or nitrogen, but was allotropic oxygen. Up to this time it was evident that what the author says of to-day was true of then, namely, that though many people discourse on ozone there are not many who know what it is. The review of the advances made in the apparatus employed for obtaining, or rather endeavouring to obtain, ozone in considerable quantities is carried down to recent patents taken out by the author last year, it only being during the last three or four years that a satisfactory generator has been devised.

As many as twenty different forms of generators are described, most of which show that very little real advance was made on the generator invented by Siemens in 1857, until the introduction of the Siemens-Halske generator some thirty-four years later; after which date real improvements seem to have cropped up more rapidly, and plants were put down for the production of ozone on a large scale. Some of the more important uses for ozone to which reference is made are bleaching, oxidising oils, maturing spirits and wines, and disinfecting, whilst in connection with chemicals its action on certain metals and compounds is described.

There are several mistakes in the text, which are, however, so palpably errors of the press that they are not likely to be very misleading. The pamphlet itself is certainly a most useful and comprehensive review of a subject concerning which only too little is at present known.

MINERAL RESOURCES OF THE UNITED STATES FOR 1891. By David T. Day, 610 pp., with index. Washington: Government Printing Office, 1893.

This annual publication reviews the progress of some forty-seven minerals in the United States. Iron, coal, and the manufacture of coke naturally receive most attention, since the States now claim to be first of all iron and steel manufacturing countries, a claim which is not to be contested lightly.

It is, and has long been, a sore point to taxpayers in this country to see the way the United States Government assists trade in general by its publications, which are of practical utility; and then note the nature of the information which our own Government so sparsely provides us with.

The general impression to be gathered from the summary of the progress in the American mineral world is that minerals abound, are worked on an increasing scale, and at remunerative prices.

The world's production of iron was less in 1891 than in the previous year, and so in consequence was the production in the States, yet that production was greater than any other country. Copper shows a very marked increase, Lake Superior, Arizona, and California contributing chiefly to this increase. Zinc, lead, quicksilver, antimony, and aluminium all tend in a similar direction, the increase in the first and last named items being especially notable. Manganese, nickel, and cobalt, and chrome iron ore alone show a decreased production. In the case of manganese the sudden falling off at the Virginian mines was in a measure compensated by the production in Colorado. The output of tin in California amounted to 125,289 lbs. The production of petroleum, owing to the discovery of the McDonald and other fields, was higher than it had ever been before; while the production of Portland cement also made rapid strides.

Salt, pyrites, barytes, and gypsum all show an advance, the demand for pyrites being at that time in excess of the supply.

There are several most interesting articles dealing individually with the various mineral productions, that on aluminium being especially so, as it contains much useful information upon the bauxite deposits of Georgia, Alabama, and Arkansas. In 1891, 100,000 lbs. of the metal were produced.

The particulars concerning the manufacture of coke, though interesting, might, we think, have been made more so. It seems that in 1891 there were in the States 40,245 ovens and 911 more building, the number building being very much smaller than it was in the previous five years. The production of hydraulic cements is assuming very large proportions. Sulphur was chiefly derived from Utah, and salt from Michigan and New York; bromine being recovered from the Michigan salt mother liquors. Magnesite, though not abundant, is being worked even more extensively, the largest deposits being at Child's Valley, Napa County, and perhaps the purest deposit in the Visalia beds. The book ends with a commercial retrospect of the principal mineral water springs.

THE GAS SUPPLY OF LONDON.

THE quality of the gas supplied to the City of London for the week ending August 26th, 1893, was good. According to the report of Mr. W. J. Dibdin, chemist and superintendent gas examiner to the London County Council, the tests made at the various testing stations showed no deficiencies in illuminating power. The following figures have been prepared from the report, and show the average composition of the gas calculated on the mean test:—

Company.	No. of districts tested.	Illuminating power (in stand. sperm candles).	Sulphur. Grains in 100 cb. ft.	Ammonia. Grains in 100 cb. ft.	Sulphuretted hydrogen.
		Mean average.	Mean average.	Mean average.	
Gas Light and Coke Co.	14	16'32	9'83	0'41	Nil.
South Metropolitan Gas Co.	6	16'43	9'66	0'83	Nil.
Commercial Gas Co. . .	2	16'35	7'80	0'80	Nil.

The standard gas supplied by these companies should have an illuminating power of 16 sperm candles, and contain not more than 22 grains of sulphur and 4 grains of ammonia per 100 cub. ft. of gas, on an average of three days, with a pressure of one inch between sunset and midnight, and six-tenths of an inch between midnight and sunset.

RIVER POLLUTION.—The Joint Sewerage Board of Accrington and Church have under consideration a scheme of filtration to cost about £10,000. The present works are deemed insufficient to comply with the requirements of the County Council, who insist upon a purer effluent, and have given the Board notice to cease polluting the river.

The World's Columbian Exposition.

ENGLISH INDUSTRIES AT CHICAGO.

(Specially Communicated.)

MESSRS. LEVER BROS. LIMITED.

AMONG the numerous exhibits at Chicago possessing such attractive appearance as to at once arrest the attention of sightseers, that of Messrs. Lever Bros. is strikingly attractive. The interest taken by those who, as free and independent citizens, only owe allegiance to the "stars and stripes" in the details of the home of Our Most Gracious Majesty the Queen is surprisingly keen, and judging from the numbers who thronged around the model, we should think Messrs. Lever Bros. had made a *coup* in deciding to represent

WINDSOR CASTLE AT CHICAGO.

The exhibit (an engraving of which we give) occupies an important position in the British Section of the Manufactures Building, near to one of the principal entrances. It covers a space of no less than 45 feet in length, by 17 feet wide. The extreme height is 17 feet. The model of the Castle is raised on a handsome sub-structure, within which is arranged a beautifully decorated entrance vestibule, an elegant reception room, and a large storeroom.

Externally the sub-structure is divided into two arcaded tiers of panels by perpendicular columns of ivory enamel, with gilded enrich-

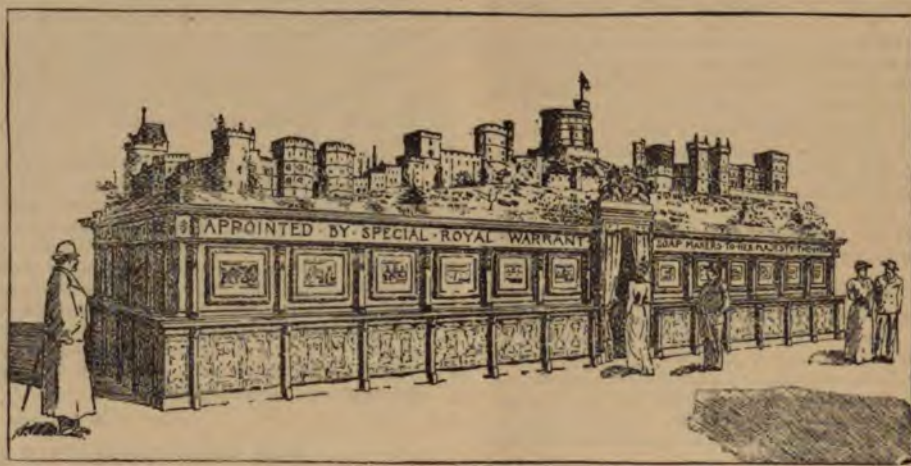
variety to the decorations. A lantern light, supported on fluted and gilt ivory columns, rises above the centre of the room. The sides of this light are occupied by beautiful paintings of birds, butterflies, bats, &c., representing the progress of a day from dawn to dusk. Gilded suns in high relief are introduced into two of these paintings. The roof of the light is of painted glass, representing figuratively the four seasons of the year.

A collection of platinotype photographs of the various departments of the Sunlight Soap Works, and of the half-timbered workmen's cottages in the village of Port Sunlight, hangs upon the walls of these two apartments.

The model of Windsor Castle itself surmounts the stand just described, and is solidly modelled in wood, canvas-lined, and painted in tints appropriate to the different materials employed in the construction of the castle.

When looking at photographs of this portion of the exhibit, it is difficult to tell whether you are looking at photographs of the castle itself or not. Every tower, every window, every doorway, is accurately reproduced, even to the very weather stains. On the Round Tower floats a royal standard; on the Bell Tower there is a brazen weather vane. The sentries stand at their posts. The greensward "slopes" look like veritable grassy banks, and trees appear to be shewing forth that vigorous strength for which the trees of Windsor are famed, ivy clinging to the walls here and there. Altogether, the effect is realistic in the extreme.

When it is remembered that every three-eighths of an inch in the model represents twelve inches in the original, one cannot but marvel at the consummate skill of the construction. It may interest our readers to know that the whole of Messrs. Lever's exhibit was com-



ments. The upper tier, which is set back, is divided from the lower by a narrow counter-top covered with rich plush, on which the firm's products are attractively displayed. The upper panels are filled with rich Oriental leather damask, against which are hung richly-framed copies of Messrs. Lever Brothers' handsome show cards, and their other reproductions of works of art. Below the deeply-moulded ivory and gold cornice which runs round the top of the stand is painted a list of the gold medals and other awards which Sunlight Soap has secured at other exhibitions.

The tier of panels below the counter is filled in with embossed *anaglypta*, chastely coloured in olive tints in imitation of Doulton art tiles.

There are two imposing entrances to the stand, one in the centre of either side. Over each is placed the Royal Arms richly emblazoned in heraldic colours. The name of the exhibitors and lists of their principal home and foreign offices appearing in raised gilt letters of a delicate French style, on plush panels on either side of these entrances.

Internally the stand is magnificently decorated, and the chaste effect of the decorations is heightened by the graceful introduction of electric lights. The entrance vestibule is 16ft. 6in. by 9ft. 6in., delicately fitted in ivory and gold, the walls being covered with fawn and gold leather. The central portion of the ceiling is domed, and it is difficult to decide whether the beautiful oil fresco frieze of old caravels and such like curious craft of the time of Columbus, or the stained glass centre light representing the four winds of heaven, is the more artistic in conception and execution.

The fittings of the reception-room, which is 16ft. 6in. square, are again in ivory and gold. A different tinted leather (a geometrical pattern in crimson bronze) is used on the walls, giving a pleasing

pleted, erected, and electrically lighted at their works, after which it was taken to pieces and packed for shipment to America. The whole consignment weighed nearly twenty tons.

THE EXTRACTION OF ZINC.—The separation of zinc from complex ores so as to obtain the metal in a state of purity is a matter of some difficulty. A patent process which originated from New York consists in roasting the ore gently to expel arsenic and sulphur, and then mixing the same with carbonaceous matters and heating in a furnace. The fume is dissolved in sulphuric acid, which throws down lead as the sulphate and the zinc is obtained by electrolysis. The electrolyte is kept in a state of constant circulation.

CHEMISTRY IN THE WORKHOUSE.—The Free Literature Society seems to have some peculiar notions as to what would be interesting reading for inmates of workhouses, to judge by a recent batch of books sent to the Kettering Union, the guardians of which have become annual subscribers to the society. The master brought the books before the board, and amongst them were the following:—"The Manufacture of Bleaching Powder," an 1862 "Guide to London," a "Chronology of the Soap Trade," "The Oil and Colour Man," "Improvements in Acid Manufacture," "Condensation of Noxious Vapour," and "German Almanacs." A guardian suggested that they should write and offer the books back at half price, but before taking action, it was decided to wait and see if there was any improvement in the next batch. If a volume of the *Chemical Trade Journal* had been sent no doubt the guardians would have felt that they had got better value for their money, and the inmates' cup of happiness would have been filled to overflowing.

THE MERSEY AND IRWELL JOINT COMMITTEE.

The usual monthly meeting of this Committee was held last Monday at the offices, Mosley-street, Manchester, under the presidency of Mr. T. W. Killick.

The first business was the report of the Chief Inspector (Mr. R. A. Tatton), which was duly presented, and ran as follows:—

The extension of time granted to the following authorities has expired:—Ashton, Stalybridge, Dukinfield, Hurst, Audenshaw, Ramsbottom, Macclesfield, Whitworth, Droylsden, Little Lever, Gorton, and Aspull.

Audenshaw.—Population, 6,665; ratable value, £33,865.

The scheme for dealing with the part of the district which drains into the river Tame is now before the Local Government Board. With regard to the part which drains into the Manchester Corporation sewers at Fairfield, I beg to lay before you the following letters from the Clerk on the subject of the proposed meeting of the surveyors of each authority concerned:—The letters referred to communications from Denton saying they did not intend to join the joint scheme; from Ashton to the effect that they did not pollute, and Droylsden notifying the appointment of their surveyor. Another letter intimated the steps being taken to arrange the meeting of surveyors mentioned above. This matter is further dealt with in the report of the consulting sub-committee:—

Ramsbottom.—Population, 16,700; ratable value, £68,318.

The Local Government Board inquiry into the proposed sewage scheme was held last July.

Macclesfield.—Population, 36,000; ratable value, £80,748 7s. 6d.

The Local Government Board's Provisional Order with respect to the purchase of land for a sewage farm has been confirmed by Parliament.

Whitworth.—Population, 9,800; ratable value, £46,458.

The plans for this scheme are not yet complete, and application has not yet been made to the Local Government Board.

Droylsden.—Population, 9,500; ratable value, £30,168.

The Local Government Board have sanctioned the borrowing of money to carry out the sewage works.

Gorton.—Population, 15,500; ratable value, £43,126.

The Local Government Board has also given its sanction to this scheme.

Little Lever.

The Local Government Board inquiry was held on July 20th.

The following samples of effluents have been analysed by Sir Henry Roscoe, and reported upon as follows:—

Stretford Sewage Farm.—Taken August 1st, 1893.

This effluent contains too much suspended matters, mainly of an organic character; but otherwise the effluent is a fairly satisfactory one.

Bolton Corporation (Hacken Works).—Taken August 3rd, 1893.

This effluent is not a satisfactory one, inasmuch as the amount of organic matter is high; also the suspended matters and the effluent had a slight offensive smell.

I beg to lay before you a correspondence with the Altrincham Rural Sanitary Authority on the subject of the Knutsford sewage effluent.

The effluent from the Knutsford Sewage Works was adversely reported upon by Sir Henry Roscoe at your meeting held on July 3rd.

The correspondence mentioned referred to an analysis made by Mr. Carter Bell, which was of a satisfactory nature, the chief inspector, following up the apparent discrepancy, learned, however, that the sample sent to Mr. Bell was not the effluent from the sewage works, but a sample of the water passing from Tatton Mere (an area of some 200 acres of water) into which mere the effluent from the works is turned. The information afforded by the letters is supplemented by the statement of the chief inspector, that the point in Tatton Mere where the sample was taken was a mile below the sewage works.

An inquiry was made by Mr. Haslam as to the position in which authorities having, or supposed to be having, works in operation were, he advocating their more frequent inspection.

The Chief Inspector stated that these works were inspected from time to time, but thought more inspection was needed, and proposed the appointment of a special inspector for this work, as the present staff was not able to give these works the close inspection which it was desirable should be exercised. This suggestion was supported by Mr. Groves. Mr. A. E. Reyner was in favour of a special inspector, and suggested the formation of a special sub-committee.

The Chairman proposed that the matter be referred to the Consulting Sub-Committee, which proposal was formally moved by Mr. Haslam, and seconded by Mr. Groves.

Mr. Cooper then appeared before the committee to explain the progress which the Bolton Rural Sanitary Authority was making in preventing the pollution of the rivers in its district. From the explanations laid before the committee, it was decided, on the motion of Mr. Reyner, seconded by Mr. Cheetham (Rochdale), to hold over

the summons (which was down for hearing on the 28th inst.) for three months.

THE CONSULTING SUB-COMMITTEE then presented the following report:—

The Consulting Sub-Committee have to report that they have considered the position of the undermentioned local authorities:—

Ashton Corporation, Stalybridge Corporation, Dukinfield Local Board, Hurst Local Board, and Audenshaw Local Board.—It appearing that a joint scheme, as recommended by the Committee of the House of Commons and by this Committee, is not likely to be adopted by the five above-named authorities, the Sub-Committee recommend that a further extension of time for one month be given to each of them, and that they be informed that unless they are prepared with definite schemes at the expiration of that time proceedings will be taken against them.

Ramsbottom Local Board.—A Local Government Board enquiry into the scheme for providing the necessary works has been held, but no decision has yet been received. The Sub-Committee, therefore, recommend that a further extension for three months be granted.

Macclesfield Corporation.—The Corporation have obtained a Provisional Order enabling them to purchase land on which to treat their sewage. The Sub-Committee recommend that a further extension of time for one month be given, for the purpose of enabling the Corporation to acquire the necessary land.

Whitworth Local Board.—Owing to the delay experienced by the Engineers in obtaining ordnance maps the plans are not yet ready. The Sub-Committee, therefore, recommend that a further extension of time for one month be now given them.

Droylsden Local Board.—Mr. Tatton having reported that the Local Government Board have sanctioned this scheme, your Sub-Committee recommend that a further extension of time for three months be now given them.

Little Lever Local Board.—The Local Government Board have held an enquiry into their scheme, but have not yet announced their decision. The Sub-Committee, therefore, recommend that a further extension of time for three months be now granted to them.

Gorton Local Board.—The Sub-Committee having noticed that the Local Government Board have sanctioned this scheme, recommend that a further extension of time for one month be granted to the Gorton Local Board, in the hope that at the end of that time they will furnish the Committee with definite information as to proceeding with the works.

Aspull Local Board.—The Sub-Committee recommend that a further extension of time for three months be now given them.

Middleton Corporation.—A letter has been received from the Town Clerk, stating that their scheme is before the Local Government Board, and that a deputation from the Corporation waited upon one of the Board's officials on the 9th ultimo, and requested that an inquiry might be held at an early date. The Sub-Committee recommend that the Clerk be directed to write to the Local Government Board, with a copy of the Town Clerk's letter, and request them to give the matter their early attention.

Bacup, Bury, and Whitefield Sewage Schemes.—Letters have been received from the Local Government Board enclosing copies of letters addressed to the Town Clerk of Bacup, the Town Clerk of Bury, and the Clerks to the Whitefield and Radcliffe Local Boards, which will be laid before the Committee, setting out the position of the schemes of the authorities named with regard to the treatment of sewage. The Sub-Committee recommend that the Clerk be directed to write to the Local Government Board thanking them on behalf of the Committee for the letters, and for the information contained therein.

Manchester Ship Canal.—The Sub-Committee have had under their consideration the Report of the Directors of the Manchester Ship Canal Company, and recommend that they be informed that the Joint Committee note the remarks in the Report of the Company forwarded to them, and agree with the Manchester Ship Canal Company as to the necessity of the water in the Canal being purified; and the Joint Committee are grateful for the recognition of the work that they have so far been able to accomplish. The Committee do not, of course, exist simply to cleanse the water of the Ship Canal, inasmuch as the object of their creation was the purification of the whole of the streams within their jurisdiction. The Committee consider that it is their duty to effect a permanent improvement in the condition of the waters in the Mersey and Irwell watershed, and therefore, their attention has been, and is, directed to inducing the various authorities and individuals in the watershed to adopt and use satisfactory methods of treating noxious effluents, and to see that solids are kept out of the streams. The Joint Committee believe that they have practically succeeded in keeping solids out of the watercourses; the efficient treatment of sewage and manufacturing pollutions will take time.

Bolton Rural Sanitary Authority.—This authority has written calling attention to the tipping of refuse into a drain from Bury Road, in the township of Tong, which empties into the river near Tong Bridge. The Sub-Committee have referred the matter to Mr. Tatton.

Pollution in Derbyshire.—The Sub-Committee recommend that the Clerk be requested to advise as to the best means of stopping the pollution which now takes place in the Derbyshire streams.

The recommendations were adopted with the exception of Little Lever, in which case the time was reduced to one month. The Aspull Local Board, it was stated, contemplated joining with Wigan, thus taking the sewage out of the jurisdiction of the Committee.

Mr. Alderman Walmsley then proceeded to call attention to the action of the Local Government Board in the cases of Bacup and Bury. By insisting on land being obtained they brought matters to a dead lock, and this matter had, he would remind them, had been before Parliament recently (*vide C. T. J.*, 326, p. 116). Dr. Hewitt reminded the Committee that the facts before the Local Government Board were that up to now, no purely chemical precipitation process could produce a good and persistently satisfactory effluent, and land filtration was an absolute necessity; hence, the Local Government Board were very particular on this point. Mr. Groves contended that filters suitably prepared, could and did successfully supplant land, and they occupied much less space where land was scarce. Mr. Walmsley further said, the waters turned into the rivers were not wanted for potable purposes, it surely could not be contended that only waters equal to the purest well water should be sent into the rivers in manufacturing districts. It was illogical that authorities should be driven one way by the Local Government Board and another way by that Committee. He maintained that by a combination of mechanical and chemical processes they could get as good an affluent as could reasonably be required. Mr. Fowler had said the Local Government Board would not stir till it could be proved to demonstration that certain things could be done otherwise than by the land process. If they waited for such demonstration they might wait till the millennium. The authorities and that Committee suffered continually from this futile and almost childish policy of the Local Government Board. He was of the opinion that a strong and well-learned deputation, composed of men fully acquainted with the chemical, mechanical and other aspects of the matter ought to make representations to the Local Government Board, and he gave notice of moving a motion to this effect at the next meeting. Mr. Alderman Hopkinson said the Local Government Board insisted on theoretical perfection or nothing at all. He contended that it was not their business to prescribe methods, but to see that satisfactory results were obtained. In their administration of the Alkali Acts, they did this, but with regard to sewage it was just what they did not do. He referred the members of the Committee to an article which appeared in a monthly magazine for September on this matter (a review of this article is to be found in the columns of this issue. *Ed. C. T. J.*), and urged the necessity for prompt action.

In regard to the paragraph concerning the Ship Canal Company, the Chairman said the committee were sometimes accused of being simply a sub-committee of the Ship Canal Company. It was not so. They were formed a committee to purify all the streams in the watershed, though it might be true that the approaching completion of the Ship Canal made the work the more imperative. Everyone seemed ready to throw a stone at the committee. The fact was ignored that for long years the pollution of streams had gone on, though there had been no right of pollution, and though a prevention Act was passed in 1876. The committee had been in existence for three years, and anyone acquainted with the impediments in the way of work being done could not but come to the conclusion that all that it was possible to do had been done.

The recommendations in the following report of the Chemical Sub-Committee were adopted:—

THE CHEMICAL SUB-COMMITTEE have to report as follows on the three under-mentioned firms who have already been before the Joint Committee:—Mr. Tatton having reported that Messrs. T. Heap and Son have put down tanks, the sub-committee recommend that the consideration of the question of taking proceedings against Messrs. Heap be further adjourned for one month.

Mr. Tatton reports that the Handforth Printing Company has tanks, which have been in operation for some time, but are inefficient. He further reported that he had visited the works on the 29th August, and found that the company had done nothing to remedy them, but that the manager undertook to write a letter to the effect that they would submit plans to the committee at the October meeting for amending the works. The sub-committee recommend that proceedings be taken against the company.

The sub-committee recommend that proceedings be taken against the Hollingworth Printworks, Hollingworth, in the manner prescribed by "The Mersey and Irwell Joint Committee Act, 1892."

The sub-committee have considered the position of the under-mentioned woollen manufacturers, and they are not satisfied with the action they have taken. They therefore recommend that a notice be now served upon them, inviting them to appear before the Joint Committee, if they so desire, to show cause why proceedings should not be taken against them:—

R. Ashworth, Bacup; David Taylor, Bacup; J. Tatterstall and Sons, Rawtenstall; R. Ashworth, Rawtenstall; R. Rawlinson, Rawtenstall; Hardman Bros., Rawtenstall; J. Rostron, Ramsbottom; Porritt Bros. and Austin, Ramsbottom; Jas. Chadwick, Littleboro'; J. Harwood, Littleboro'; S. Berry, Milnrow; J. Kershaw, Wardle, Rochdale; E. Leach, Wardle, Rochdale; Bamford Bros., Wardle, Rochdale; — Stott, Wardle, Rochdale; J. Chadwick, Wardle, Rochdale; W. Shaw and Sons, Wardle, Rochdale; J. Tunnicliffe, Rochdale; A. Thompson and Sons, Rochdale; J. Schofield and Sons, Rochdale; Bottomley and Co., Rochdale; Heap and Sons, Rochdale; R. Schofield and Sons, Rochdale; J. Leach and Sons, Rochdale; J. Ashworth, Norden; J. Kenyon and Sons, Heywood; Geo. Clough, Heywood; G. Lawton and Sons, Micklehurst, Mossley; R. Radcliffe and Sons, Micklehurst, Mossley; J. Schofield and Sons, New Mill, Littleboro'; T. and C. Littlewood and Co., Low Hill Mills, Rochdale; Littlewood and Heap, Rochdale; W. and R. Lord, Rochdale; R. Schofield, Watch Hall Mill, Rochdale; Mitchell Bros., Rawtenstall; J. Radcliffe and Co., Rochdale; W. Hastings and Sons, Rochdale; W. Pilling, Rochdale.

A special meeting of the Joint Committee was announced for Oct. 16th prox., at which these cases would be dealt with. The reports of the Finance Committee and the Treasurer having been passed, the proceedings terminated.

Paper Makers' Column.

SULPHITE WOOD PULP IN AMERICA.

(Specially Contributed.)

THE following description of an American Sulphite Wood Pulp Mill, which recently appeared in the *Papier Zeitung*, will be interesting to many of our readers. The mills referred to are known as the Kimberly Mills, and are situated on the Fox River. In America, Germany, and Scandinavia, the production of Wood Pulp has established itself more surely than in England. Manufacturers in the United States have perhaps been bolder in their plan of operations, and hence, in some respects, their operations and plant differ in a notable degree from those employed in Europe.

Formerly, boilers made of bronze were in use at the Kimberly Mills, but they have been removed and replaced by three vertical boilers, provided with a steam jacket, and protected inside with the Salomon-Brügger protecting composition (a coating of sulphate of lime). Each boiler is six feet six inches in diameter, and thirty feet in height; and when full yields 3,500 pounds of dry pulp. The filling and emptying occupies about thirty minutes, while the boiling process lasts from eight to nine hours. Every twenty-four hours there are prepared eight boilings with the three boilers. The bisulphite of lime liquor is prepared by burning English recovered sulphur in three ovens and passing the sulphurous acid gas first, through a cast iron tube, and then through towers containing limestone. The three towers are connected together with earthenware pipes, and the last one with a chimney to produce the necessary draught. Samples of the gas passing from the last tower to the chimney, are repeatedly taken and passed through iodine and starch solution to ascertain whether the whole of the sulphurous acid gas has been absorbed, or converted into bisulphite of lime.

The wood is mostly brought from Canada by water carriage, and is first of all cleaned by being held in an upright position against a revolving disc containing knives, which quickly removes the bark. It is then chopped with circulating knives fixed in a disc, and from the cutter goes to a duster, through the sieve of which pass the sawdust and small impurities. The larger pieces of wood fall from this duster into a ventilator, by which they are broken up or pulverised, and conveyed to a second revolving sieve, through a tube 18 in. in diameter. The first part of this revolving sieve is covered with a gauze having $\frac{1}{4}$ inch holes, whilst the lower part (more than one-half the whole length) is covered with gauze with $1\frac{1}{4}$ inch holes. The good wood passes through this latter, the knots and large pieces being retained. The latter fall from the end of the sieve, and are used for raising steam under the steam boilers. The quantity is only a few wheel-harrows full per day however. The good wood is conveyed by ventilator and chain conveyors to the floor over the boilers, into which it falls by gravitation, when the openings in the bottom of the receptacles are opened.

As little time is lost in filling in the lye as in filling in the wood. The sulphite liquor formed in the tower is pumped by the aid of a bronze centrifugal pump into a receiver in the highest part of the building, where all insoluble particles are deposited, and from thence it flows to the boilers through a wide pipe. The boilers are emptied more quickly than they are filled. When they are opened at the bottom, the whole of the contents, under the prevailing steam pressure, is blown into an upright circular wooden tank, built of 4-inch planks,

high by 16 feet in diameter. The side of the vat against which is ejected is covered with a double layer of 4-inch planks, and are covered with bronze plates, which break up the bundles as the pulp is thrown violently against them. The lye at this the manufacture does not give off much smell, as the sulphur is used up in the boiler. A sample of the liquor is taken from the boiler and the quantity of sulphurous acid ascertained by with iodine. In this way, the workmen know when the boiling is done. By thus blowing out the whole contents of the pulp boiler, the lye occupies only three minutes. As the lye contains no free sulphur, it is allowed to flow uninterruptedly into the river.

The boiled and broken pulp is now pumped upon large knotter plates, which retain all the thick parts, such as knots, etc., and only the fine good fibres to pass through. In the knotter, small water spray pipes are arranged over the plates and with the slits from which a stream of water forces all solid matter remaining on the plates from one end to the other, where it is taken out. The perforated pipes lie over the plates, keeping them clean, and facilitating the work. From these knotters the pulp is pumped over a broad and very long sand-catcher into the stuff-chest, from which it is pumped to the press p $\acute{a}$ te.

The whole arrangement, which is common throughout America, is similar to that with the object of economising labour; the limestone is conveyed by a mechanical arrangement to the top of the towers, and the pulp is cleaned and freed from knots in the same way.

It is therefore possible to make about 28,000 lbs., or from 12 to 13 cwt. of dry pulp in 24 hours with 40 labourers. There are so few knots in the pulp that it can be bleached to a fine degree of whiteness, and be used for better class papers. The works are built on the same principle, so that three more boilers, etc., can be added if it is found necessary to do so.

Parliamentary Jottings.

FERTILIZERS AND FEEDING-STUFFS BILL.

In the House of Lords last week, Lord Ribblesdale, in moving that the Bill be read a second time, said that the Bill was prepared on the recommendation of the departmental committee appointed in March, 1892, by the then President of the Board. The committee was presided over by the noble lord the then member for the Medway Division, and the advantage of the services of the member for Northampton, who had given special attention to the subject, Mr. Albert Peel, Peter M'Lagan, and various official members. The report of the committee was published in the interests of agriculture, of legislation for the purpose of rendering it more easy for the purchaser to obtain the real value of the article with which he was supplied. The use of manures, or, as they are more delicately termed, fertilizers, the committee reported that there was a preponderance of opinion to the effect that a considerable amount of fraudulent dealing existed in the case of compound manures, and that there is a large quantity of selling unguaranteed and comparatively worthless articles at a high price. With regard to feeding-stuffs, the committee reported that the trade in oil-cakes is a field in which the practice of adulteration is particularly prevalent, and that there is a large quantity of articles, more or less impure or adulterated, sold as pure products. The Bill proposed in the first place to place a purchaser in a better position to obtain his remedy, by providing that, in cases in which the fertilizer or feeding-stuff is found to be in quality to what he is led or entitled to expect when he purchases it, and in the second place it makes certain offences the subject of criminal proceedings and penalties. If any person fails without excuse to give the invoice which, under the Act, must be given, or if it is to have effect as a warranty; if the invoice or the label is false in any material particular, to the prejudice of the purchaser; if an article sold for use as food for cattle contains any deleterious or poisonous substance; or if to any such article has been added any ingredient worthless for feeding purposes and not disclosed on the label of sale, the offending person is made liable on summary conviction to a penalty not exceeding £20. for a first offence and £50. for a subsequent offence. At the same time, the framers of the Bill have provided for the validity of the views urged on behalf of the trade—viz., that the Bill should not be exposed to criminal proceedings except after consultation by some responsible body, and the Bill therefore makes a recommendation of the Board of Agriculture an essential preliminary to such proceedings, except in cases where they are instituted by the council of a county or county borough. With regard to machinery, the Bill proposes to place it incumbent on county councils to appoint district agricultural inspectors, and buyers of fertilizers or feeding stuffs will be entitled, on payment of a fee, to have their purchases analysed. This analysis,

subject to appeal to a chief analyst to be appointed by the Board of Agriculture, may be made the basis of proceedings either by the person aggrieved, by a county council, or by any association authorised by the Board in that behalf. The Bill extends to Scotland and Ireland. Speaking generally, the Bill requires sellers of goods to do what honest sellers already do, and it adds criminal liabilities in cases of fraud or of wilful contravention of its requirements. An endeavour has been made to frame it so that, although on the one hand it will be effective in minimizing the malpractices to which reference has been made above, it will on the other hand impose no restrictions or obligations which hamper business and which either have the effect of raising the prices of the articles effected or are disregarded in practice. The Bill was in no sense a party measure. It had been the duty of the present Board to prepare it on the basis of the report of a committee which their predecessors appointed, and he trusted that their lordships would consent to give it a second reading.

Lord Knutsford said he had only just had an opportunity of reading the Bill. It seemed to him that its object was good, and he understood that its framework was based upon the evidence taken by the Select Committee. He hoped the noble lord in charge of it would allow a little time to elapse before it was considered by the Standing Committee.

The Earl of Kimberley was understood to say it would pass the Committee stage in the House on Monday, and be considered by the Grand Committee on Tuesday; otherwise there would be no chance of passing it in this part of the stage.

The Bill was then read a second time.

On Tuesday, the Bill came before the Grand Committee of the House of Lords, the measure being watched through the Committee stage by the author of the measure, Mr. H. Gardner, President of the Board of Agriculture. On the motion of the Lord Chancellor it was agreed that the seller of any artificial fertilizer shall state in the warranty he will have to give under the Bill that the percentages of nitrogen, phosphates, and potash contained in the product are "at least" what he has promised. As pilot of the Bill in this Committee the Earl of Ribblesdale proposed a new sub-section giving middlemen the same rights against wholesale dealers as retail buyers will have against them. The amendment was adopted. Several minor alterations having been made, the Bill was sent back to the House.

THE RIVER SUCK DRAINAGE WORKS.

In the House of Commons, on the 31st ult., Mr. Hayden asked the Secretary to the Treasury whether the Commissioners of Public Works in Ireland had declared their inability to advance this year the balance of the grant sanctioned by Parliament for the completion of the River Suck drainage works; and whether, in view of the facts that the time for the completion of these works would expire at the end of this year, and that the Drainage Board had been urged by the Commissioners of Public Works to employ as many men as possible so as to complete the works within the prescribed period, the Treasury would make some arrangements by which the balance of the grants might be made available this year.

Colonel Nolan had a similar question on the paper.

Sir J. Hibbert: The Government are unable to submit a Supplementary Estimate for this service during the present year, but the Treasury and the Board of Works are concerting financial arrangements with a view to preventing any stoppage of the works for want of funds. I understand that the time for completion can, if necessary, be extended by the Board of Works with Treasury assent.

Correspondence.

* * * We do not hold ourselves responsible for the opinions expressed by our correspondents.

ANSWERS TO CORRESPONDENTS.

- E. A.—We beg to acknowledge the receipt of those sent, and await the remainder at your convenience.
J. B. G.—They have been forwarded by post.
S. H. S.—No weekly. We hope you will not forget to give it a trial.
H. S.—Yes, you will find it in No. 254 of the *Journal*.
F. R. AND CO., LD.—We beg to acknowledge remittance, for which we thank you.
L. B.—It appears in this issue.
INQUIRER.—(1) September 13th is the date of the opening. (2) About four days usually.
CHARCOAL.—It has been adjourned to October; till then we shall not be able to give you any further information.

Trade Notes.

SALT SHIPMENTS.—The shipments of salt to the East Indies up to the end of August show an export of 177,045 tons, as compared with 231,363 tons during the same period of 1892. As regards September sailings, it is noticeable that while only 2,000 tons are booked to sail from Liverpool for Rangoon, there is a total of 8,100 tons booked from Hamburg for Rangoon.

RIVER POLLUTION INQUIRIES.—Inquiries will be held at Royton and Bury, on Tuesday and Wednesday, September 12th and 13th, by A. Taylor, Esq., one of the Local Government Board Inspectors, touching the applications of the Mersey and Irwell Joint Committee, for permission to take proceedings against Messrs. Jowett, Waterhouse, and Co., Grimbyes Brewery; Messrs. W. Rumney and Co., Ramsbottom; and Mr. J. Whitehead, Elton, near Bury, Lancs., for alleged offences under Section 5 of the Mersey and Irwell Joint Committee Act, 1892.

EXPLOSIVES. The following is a process which has been patented for producing an explosive, which consists mainly of nitro cellulose:—Amorphous cellulose is obtained by introducing comminuted natural fibrous cellulose into a solution of permanganate of potash, separating the amorphous cellulose mixed with hydrated oxide of manganese, removing the same as nitrate by treatment with nitric acid. The white amorphous cellulose thus obtained is pressed, ground, sifted, and then nitrated, after which it may be granulated and used as smokeless powder, or mixed with bi-chromate of potassium and pressed into blocks to be impregnated with nitro-glycerine, to be used as a high explosive.

THE SODIUM NITRATE INDUSTRY.—Speaking of the development of this industry the President of the Chilean Republic stated that he considered the State should co-operate in the promotion of the use of nitrate. The interests of the public revenue and those of the nitrate makers are in harmony, and it is to be hoped that the latter, being sensible of this, will not, with the object of obtaining a higher rate of profit, reduce the production to a quantity insufficient to satisfy the requirements of consumption. In that case the time will have arrived for the adoption of legislative measures to prevent the excessive limitations of production, in the interests of both the public revenue and of the nitrate industry. The consumption for the twelve months preceding the 30th June in each of the following years has been estimated as:—1892, 871,000 tons; 1893, 848,000 tons.

THE RUSSIAN PETROLEUM TRADE.—According to the *Berliner Borsen-Zeitung*, Holland intends to take a very active part in the export of the Russian oil. A syndicate of Dutch capitalists has indeed been already formed, under the title of "Amsterdam and Baku Standard Petroleum Tank Company," having its head-quarters in Amsterdam. The object of this company is not so much to import the Russian naphtha product into Holland as to distribute it in the countries of Central Europe. For this purpose extensive tanks are being erected at Frankfort-on-the-Main and Dusseldorf, and the business is to commence in October next. The Russian Government is said to regard in a friendly way this enterprise on the part of Dutch capitalists, and the recent appointment of a Dutch consul at Baku is just announced. The Rothschild group is holding itself aloof from this Dutch scheme, having its hands full at present with the export of Russian petroleum to China and Japan.

POISONED BY PYRIDINE.—An inquest was held last week respecting the death of T. Nicholas, of Great Bridge, Staffordshire, resulting from poisoning whilst following his employment at the tar works of Messrs. Robinson Bros. Jane Nicholas, mother of the deceased, said when he returned home from work he complained that his throat was bad, and Dr. Price was sent for, and ordered his immediate removal to the hospital. Albert Whitmore said the deceased was employed with him as a stillman at Messrs. Robinson Bros.' works. On the 29th ult., about three o'clock, he and deceased were filling a barrel with pyridine oil out of a boiler. They filled the barrel too full, and deceased picked up a piece of piping (produced), and fitted it to the bung-hole. Deceased put his mouth to one end of the pipe for the purpose of setting it running, and before he could pull his mouth away he swallowed a quantity of the liquid. Witness did not know the liquid was poison, and might have done the same thing as deceased himself. He had never been cautioned that it was poison. In reply to questions witness said there was a pump specially kept to unload barrels. Dr. Helme, surgeon at the hospital, said deceased died on the 31st ult. from the effects of irritant poisoning. He had never known a case of pyridine poisoning before. Deceased told witness that it was his own fault, and no one was to blame. The coroner thought it was a most reckless thing to do. The jury returned a verdict of accidental death.

Market Reports.

TAR AND AMMONIA PRODUCTS

Benzol is very quiet, and though less business has been interval than usual, sellers have raised the price to 1s. 6d. 90's. and 50/90's, this price, however, does not indicate value of the article as regulated by the laws of supply and demand. Crude carbolic makers have been busy of late, but the price has risen to that anticipated. Anthracene remains without change, pitch looks very healthy indeed for the coming season.

The sulphate of ammonia market is quiet, and buyers are asking more than £14. 15s., but it is believed that the speculators will come to buy before the end of the month, and that the deal is only feigned. Second-hand parcels are but sparingly offered. Forward business is entirely neglected, as the dealers can only parcels at their own prices. Beckton is nominally outside makes, £14. 17s. 6d.; Leith, £15.

REPORT ON MANURE MATERIAL

During the week there has been a very fair business in advancing prices for phosphatic material, whilst value of material has been scarcely maintained.

Mineral phosphates are decidedly stronger all round. Florida, 8¼d. per unit, in cargoes c.i.f. to United Kingdom now have to be submitted. Peace River and South Carolina rocks cannot now be had under 7d. per unit from the largest sources; it is doubtful whether anything under that price would now be obtained from any outsider. River Plate bones are much enquired for, 15s. has been paid more than once for United Kingdom. Probably still be buyers at the price, but in the meantime asking more money. For Crushed Kurrachee bones £4. 10s. bid ship Hull or ex quay Liverpool now asked; £4. 10s. bid. Last week £4. 12s. 6d. was accepted for Bombay bone meal shipment, but sellers are again firm at £4. 15s. Nitrate somewhat quieter, though with very little change in value. Ordinary quality may be had at 9s. 3d., and refined, 10s. per cwt. Due cargoes are worth 8s. 10½d. to 9s. 1½d. according to the size and test, July-August, 9s. 1½d. to 10s. 1½d. cwt., and September-November, 9s. 3d. to 9s. 4½d.

There is nothing special to report in miscellaneous manures.

MISCELLANEOUS CHEMICAL MARKETS

In the alkali trade there is still considerable activity, and heavy demand for supplies. The curtailment of production has reduced stocks of caustic soda, and further advance in price may be looked for. F.o.b. Liverpool: The prices are about higher during the week. There is no nominal change, shipments from the Tyne, and current quotations may be £11. 10s. for 77%; f.o.b. Liverpool, 74%, £11. 5s.; 70%, £9. 5s.; cream, 60%, £9. 10s. ton lots and upwards, and crystals the position in regard to prices is unchanged. 58% considerable business has been done over 1894 at ranging from £3. 7s. 6d. to £3. 10s. per ton in bags at m. Bleaching powder is in brisk demand both for early delivery, spot prices being £9 per ton f.o.b. Liverpool at £18. 10s. f.o.r. makers' works. Some extensive sales have over 1894 at £7. 5s. to £7. 10s. per ton on rails m. Business in chlorate of potash and soda is meantime quiet, soda steady at 9s. 1½d. to 9s. 3d. f.o.r. White powder continues in good request and scarce. Brown acetate of lime advance in price is yet obtainable; grey, in small demand, acetates dull. In potash, caustic, and carbonate there is a good deal of business being done both for early and forward delivery, are steady with, if anything, an upward tendency. Yellow of potash is well maintained at 9d. to 9¼d. In general demand is still far from satisfactory, and, with the exception of those which are directly influenced by the scarcity and high price tendency of prices is generally in buyers' favour.

THE METAL MARKETS.

LONDON, WEDNESDAY.—Pig iron steady. Scotch warrants closed at 42s. 6d. cash, Middlesbrough 35s. 3½d. cash, and hematite 45s. 1½d. Copper quiet: Chili bars, G.O.B.'s and G.M.B.'s closed at £42. 13s. 9d. to £43. 1s. 3d. cash, and £43 1s. 3d. to £43. 8s. 9d. three months. Tin quiet: Straits closed at £79. 10s. to £80. cash, and £79. 17s. 6d. to £80. 7s. 6d. three months; Australian, £81.; English ingots, £84. to £85. Lead quiet: Spanish, £9. 15s. to £9. 16s. 3d.; English, £9. 17s. 6d. to £10. Silesian spelter: Ordinary, £17. 5s. to £17. 7s. 6d. Nickel, 1s. 8d. Antimony, £38. 10s. Quicksilver: First hands and second hands, £6. 7s. 6d. Copper shares brisker: Cape, 1 to 1½. Copiapó, 1¼ to 1½. Libiola, 2½ to 2¾. Mason and Barry, 1½ to 1¾. Rio Tinto, 13½ to 13¾. Tharsis, 4¾ to 4½. Namaqua, ¾ to ¾.

WOLVERHAMPTON, WEDNESDAY.—The market continues very firm, vendors refusing to make the smallest concessions, and declining to believe that the strike will soon break up. Several works are stopped for want of fuel, and also for lack of steel from the North of England. Derbyshire and Northampton pigs have risen from 41s. to 47s. 6d., and in one or two cases to 50s., delivered Staffordshire. Leicestershire pigs are 47s. 6d. to 48s. Black sheets doubles have become £7. 10s., and lattens £8. to £8. 2s. 6d.

GLASGOW, WEDNESDAY.—Market steady, with moderate business. Scotch done at 42s. 6d. and 42s. 6½d. cash; closing with buyers at 42s. 6d. cash, sellers ask ¾d. more. Middlesbrough done at 35s. 3½d. cash; closing with buyers at 35s. 3½d. cash, sellers ask 3s. 4d. Middlesbrough hematite done at 45s. 4½d. one month; closing with buyers at 45s. 1½d. cash, sellers ask 1½d. more. Cumberland hematite closes with buyers at 43s. cash; sellers ask 43s. 3d.

LIVERPOOL OIL AND COLOUR MARKET.

WEDNESDAY.

OILS.—Palm oil has been brisker during this week, and sales have been considerable of Lagos at £24. 5s., Cameroon £22. 12s. 6d., Benin and Saltpond £22. 10s. per ton, all transit. Olive is firm at last week's currencies, with a hardening tendency. Linseed has been easing off during the week, and is now worth 22s. to 22s. 6d. per cwt., for Liverpool makes in export casks, but is rather firmer to-day. Cottonseed has had the turn for the better, and has been gradually picking up all the week till Liverpool refined is to-day worth 21s. 9d. to 23s. per cwt. Castor oil is firm, though good seconds Calcutta is slightly weaker at 2½d. to 2¾d. First pressure French continues at 2½d. to 2¾d. per lb. Tallow is in more demand, and North American is selling at 25s. 6d. to 27s. 6d. per cwt. Resin is in moderate demand, with common at 3s. 9d. per cwt., medium 4s. 8d., and fine 8s. 6d. to 11s. 6d. per cwt. Spirits of turpentine are much firmer than they were last week even, and prices have been on the increase till to-day's quotation stands at 22s. 6d. per cwt. Petroleum is in fair request, with American 4¾d. to 5½d., according to quality, and Russian refined 4d. per gallon.

COLOURS are steady without alteration in prices. Ochres: Oxfordshire, common, £10., medium, £12., best, £15.; Derbyshire, common, 40s.; medium, 50s., best, 60s.; Welsh, best, 70s., seconds, 50s., and common, 18s.; Irish, Devonshire, 40s. to 45s.; French, J.C., 55s. to 60s.; M.C., 65s. to 67s. 6d. Umber: Turkish quiet; Devonshire, 50s. to 55s. White lead, red lead, and oxide of zinc unchanged. Venetian red, £6. 10s. to £10. Cobalt: Prepared oxide, 9s. 9d.; black, 9s.; blue, 6s. Zaffres: No. 1, 3s. 6d.; No. 2, 2s. 6d. Oxide of iron: Common, £6.; medium, £10.; finest, £20. Zinc oxide, £23. to £25.

THE LIVERPOOL MINERAL MARKET.

The market, though rather quiet, continues firm. Manganese is in good demand for spot at full prices. Borate, 7d. per lb.; sulphate, £21. 10s.; oxalate, 1s. 6d. per lb.; chloride, £15., carbonate, £12. 10s., steady. Magnesite (raw lump) good demand; raw ground, £6. 10s., and calcined £12. 10s. Bauxite (Irish Hill brand): The demand for home trade is very brisk at full figures; lump 20s., seconds 16s., thirds 12s. French chalk: A good business doing at full figures. Barytes: Carbonate is still scarce; mts, 72s. 6d. to 85s.; finest white sulphate is in demand. "Angel White," No. 1, 70s.; No. 2, 60s. to 65s.; No. 3, 45s. Pumicestone quiet. Iron ore flat, Bilbao, Irish, and Cumberland slow. Sand-lender and manganese more enquiries. Emery-stone firm; No. 1 lump, £5. 10s. to £6.; smalls, £5. to £5. 10s. Fullers' earth: Best lump, 55s.; fine impalpable ground, £7.; "Emerald" ground, 80s. Scheelite, wolfram, tungstate of soda, and tungsten metal easier. Chrome ore in good demand, but more offering. Antimony

ore easier, at £11. 10s., and metal £43. to £45. Asbestos firm. Pottery lead ore, smalls, £10. 10s. to £11. Calamine strontia sulphate (celestine) quiet. Limespar steady, especially for English manufactured; old G.G.B. brand in demand at 50s. (ground). Felspar quiet. Fluorspar: Best quality scarce. Ferro-manganese slow. Plumbago: Spanish, £5.; best Ceylon lump at last quotations; Italian and Bohemian, £4. to £12. per ton; "Founders," £5. to £6.; Blackwell's "Mineraline," £10. French sand, 20s. to 22s. 6d. Ground mica, £45. to £50. China clay steady, common, 18s. 6d.; good medium, 22s. 6d. to 25s.; best, 30s. to 35s. (at Runcorn). Bog ore (oxide of iron): finest quality 25s. to 30s.

HULL PAINT, OIL, AND COLOUR REPORT.

TUESDAY.

OILS.—Nothing of particular interest is moving here. Trade generally is still suffering, both directly and indirectly, from the effects of the coal strike. Oil is only of secondary importance to a consumer, besides the coal producer is one of the oil trade's best customers. The exports of oil for the week ending are: linseed oil 1,940 cwt., and cotton oil 4,700 cwt. Linseed oil has experienced a further decline of 10s. per ton on spot, quotations closing flat at 20s. 10½d. naked. Forward positions keep steady at 20s. 3d., September; 19s., September-December; and 18s. 9d., January-April. Casks 17s. 6d., and ordinary barrels 22s. 6d. per ton extra. Refined cotton oil, after advancing to 20s., naked spot, turned dull again and closes at 19s. 9d.; September-October, 19s. 6d.; November-April deliveries made 17s. 9d., at which there are still sellers; crude, 17s. 7½d.; naked spot, September-October, offer at 17s. 6d. For new oil, November-April, there are buyers at 15s. 9d. Refined rape in casks, 25s. Olive oil, £33. to £38. per tun. Castor oil in fair demand at previous rates, the supply is principally of French origin. The fish oil trade continues very dull, prices remaining still very low. Coast cod oil, £17. 10s. to £20.; Newfoundland, £26.; herring oil, £16. 10s.; sod oil for curriers, etc., £15. to £17.; pine oil, £7.; anti-friction grease, £5. 15s.; engine and machinery oils, from 1s. 3d. per gallon; petroleum jellies, from 26s. per cwt.

CAKES.—Rather more orders for all kinds of cakes, and the tone of the market is firmer in view of the inadequate supply of seeds on the spot, which are just half of those held last year at this time, especially so as applied to cotton cake. Linseed cakes are steady, 95% pure, £8. 12s. 6d.; ordinary, £7. 7s. 6d.; Russians, £8. 10s.; Americans, £7. 10s. Cotton cakes firmer; spot sellers careless below £5. 7s. 6d. to £5. 10s., tending to £5. 15s., the price a year ago, under which price they cannot be made. November-March, £4. 15s. bidding, but sellers are passive in the absence of an adequate margin. Rape cakes: East India, £4. 15s.; Black Sea, £4. 5s.; feeding cakes, £5. 10s.

PAINTS.—The trade shows no change upon the positions chronicled last week, prices being: white and red lead unchanged; oxide of zinc, £23.; oxide of iron dry, £9. to £18.; lime blue from 16s. per cwt.; Venetian red, £6. to £10.; ready mixed paints in 1, 2, 4, 7, and 14lb. patent tins, from 28s. per cwt.; enamels from 4s. 9d. per dozen; oak varnish from 6s. per gallon.

WEST OF SCOTLAND CHEMICALS.

GLASGOW, TUESDAY.

The market for sulphate of ammonia suffered a somewhat sudden retrogression soon after last report, and at the close of the week the value for prompt fell below £15. Highest business done here was £15. 5s. At present there is scarcely any turnover at all, and opinion in the trade proves very conflicting, some arguing that last week's drop is the beginning of a long slide, while others are fully as confident that it is but a passing incident, and that the advance in the article is not yet exhausted, or anything like it. In forward, there is also an almost complete blank as to business carried through. Mineral oil and paraffin products continue steady, not to say stiff, as to values, and in one there has been a further recovery. Paraffin spirit (naphtha) now fetches 4½d. per gallon for prompt delivery, while forward business cannot be arranged on a lower basis than 4½d. at present, with the pretty sure prospect of a further rise. In the general market it is reported that the advance in some of the standard chemicals, owing to fears of strike results, has had the effect only of still further checking business. Advances are, however, maintained.

Chief prices current are:—Soda crystals £2. 15s. nett, Tyne; soda ash £5. 5s. nett, Tyne; refined alkali £4. 15s. to £5. 5s. nett, Tyne; alum in lump £5. nett, Glasgow; caustic soda, white, 74°, £11., 70/72° £9. 10s., 60/62° £8. 10s., and cream 60/62° £8. 5s., all nett, Liverpool; bleaching powder £8. 10s. to £8. 15s. nett Tyne; salt-cake 24s.; borax, English refined, £30., and boracic acid, £37.

10s. nett, Glasgow; bicarbonate of soda, 5-cwt. casks, £6. 15s., and 1 cwt. casks £7. less 2½%, Liverpool; bichromate of potash, 4½d. nett, for Scotch and English deliveries (for export, 4¼d. nett f.o.b. Glasgow); bichromate of soda, 3¼d. nett, for Scotch and English deliveries for export, 3½d. nett, f.o.b. Glasgow; chlorate of potash 9d. less 5% Liverpool; nitrate of soda, 9s. 3d.; sulphate of ammonia, £14. 15s. to £15., prompt, f.o.b. Leith; salammoniac, first and second white, £37. and £35. less 2½% any port; sulphate of copper, £15. less 5% Liverpool; paraffin scale, hard and soft, 1¾d. per lb; paraffin wax 120° semi-refined 2¾d.; paraffin spirit (naphtha) 4¼d. a gallon spot; paraffin oil, burning, standard No. 1 grade, 5d. per gallon at works, for Scotch buyers (English sales ½d. to ¾d. lower); ditto (lubricating) 865° £4. 5s., 885° £4. to £5. 10s., and 890/895° £4. 15s. to £6. 10s. Week's imports of raw sugar at Greenock were 76,298 bags.

TYNE CHEMICAL REPORT.

TUESDAY.

Chemicals are somewhat quiet. Soda crystals continue at £2. 15s. to £2. 17s. 6d. Bleaching powder, £8. 15s. per ton. Caustic soda, £11. 7s. 6d. to £11. 10s. for highest strength. Sulphur unaltered.

Bleaching powder, softs, £8. 15s. per ton nett; hard, £9 per ton; caustic soda, 76/77%, £11. 10s. per ton, 70%, £10. per ton; recovered sulphur, 2 cwt. bags, £4. 5s. per ton; soda ash, 48%, £4. per ton, 52%, £4. 7s. 6d. per ton, 56%, £4. 15s. per ton; alkali, 36%, £3. 15s. per ton; white alkali, 48%, £4. 15s. per ton, 50%, £5. per ton, 52%, £5. 5s. per ton; hyposulphite of soda, in 5-7 cwt. casks, £7. per ton, ditto, in 1 cwt. kegs, £7. 15s. per ton; silicate of soda, 75° Tw., £2. 15s. per ton, 100° Tw., £3. 10s. per ton, 140° Tw., £3. 17s. 6d. per ton; soda crystals, in casks, £2. 17s. 6d. per ton gross weight, in 2 cwt. bags, £2. 17s. 6d. per ton nett weight; chlorate of potash, 8½d. per lb. less 6%; pearl hardening, £3. per ton nett; pure white sulphate of alumina, £4. 2s. 6d. per ton; blanc fixe, £7. 10s. per ton; chloride of barium, £7. 10s. per ton; carbonate of alumina, £28. 15s. per ton nett; aluminate of soda, £33. 15s. per ton nett; in 5 ton lots, £28. 10s.; hydrate of barium, £10. per ton nett.

South Durham salt continues scarce at 9s. 6d. to 10s. per ton nett, f.o.b. Tees.

Coals: The prolonged strike in the Midlands is helping to keep the coal trade in a very steady condition here; the return to work of the Welsh miners tends, however, to prevent prices from rising materially. Best Northumbrian steam is quoted by some of the collieries at 14s. per ton; small steam may be said to remain at from 5s. to 5s. 6d.; bunkering classes are quoted at 8s. to 10s.

New Companies.

Ashworth and Sons, Ltd.—CAPITAL £12,000., in shares of £10. each. This company has been formed to take over certain mills in Lancaster, and to carry on the business of dyers, bleachers, etc. The subscribers to the memorandum of association are:—L. Ashworth, Sunny Lea, St. Anne's-road, West, St. Anne's-on-Sea, bleacher; J. Smith, Harrington-road, Chorley, auctioneer; J. Smith, jun., Harrington-road, Chorley, banker's clerk; E. Riley, Accrington, out of business; R. Dixon, 32, Buchanan-street, Blackpool, accountant; J.

Chadburn, Blackburn, plumber, etc.; L. Butterworth, 246, Lazenby Brook, Rayton, Lancashire, cotton mill manager.

Dandy-Roll and Paper-makers' Engineering Company, Ltd.—CAPITAL £2,000., in shares of £10. each. This company has been formed to take over the business of dandy-roll and paper-making machinery manufacturer's now carried on at Stoke Newington.

The Dolgorouky Copper Mines and Smelting Company, Ltd.—CAPITAL £210,000., in shares of £1. each. The object of this company is to purchase and acquire mines in Russia or elsewhere, and to carry on all kinds of metallurgical operations. The subscribers to the memorandum of association are:—W. C. Main, Dalhouse, Ealing, no occupation; W. H. Power, 2, Pancras-lane, London, E.C., merchant; E. E. Parker, The Laurels, Royston, Cambs., mining expert; R. Sandeman, 107, Wood-street, London, E.C., agent; J. Reid, Leadenhall House, London, E.C., merchant; T. A. Jones, 39, Museum-street, Bloomsbury, London, W.C., solicitor; A. Meszkowski, Baron de Mora, Paris.

The Patent List.

This list is compiled from Official sources in the Manchester Technical Laboratory, under the immediate supervision of George E. Davis and Alfred R. Davis, who report professionally upon the value of Chemical Patents.

APPLICATIONS FOR ENGLISH LETTERS PATENT.

Feed Water Purifiers. W. Reeves. 15,821. August 21.
Water-proof Paper Material. O. Imray. 15,830. August 21.
Filters. H. Koch. 15,831. August 21.
Collection of Alcohol, Carbonic, Lactic, and other Acids, produced in the Manufacture of Spirits and Yeast. H. H. Lake. 15,842. Aug. 21.
Smokeless Explosives. F. G. Du Pont and S. Du Pont. 15,865. August 22.
" " " " 15,866. " "
" " " " 15,867. " "
Varnish for Woodwork. Z. H. De La Royère. 15,881. August 22.
Apparatus for the Manufacture of Sulphuric Acid. F. B. Hacker and P. S. Gilchrist. 15,895. August 22.
Improvements in Electrolytic Apparatus. D. Young. 15,906. August 23.
Improved Manufacture Bicarbonate of Ammonia. W. Brothers. 16,010. August 24.
Manufacture of Rose-Red Glass. H. Ritter Von Kralik and W. Ritter Von Kralik. 16,018. August 24.
Improved Decomposition of Sodid Sulphate. J. Pedder. 16,046. Aug. 25.
Smoke Consumers. J. Milton. 16,082. August 25.
Air Compressors. G. Guest. 16,114. August 26.
Pumping and Absorbing Chlorine Gas, and Apparatus therefor. P. J. Worsley, W. Windus, and B. Bracey. 16,151. August 26.

Gazette Notices.

PARTNERSHIP DISSOLVED.

R. POWELL AND H. E. SCHOLEFIELD, chemical manufacturers, Liverpool, under the style of Powell and Scholefield.

BANKRUPTCY ACTS, 1883 and 1890.

Receiving Order.

J. BREAKSPEAR, India-rubber worker, Deritend, Birmingham.

Adjudications.

COURT, ALFRED, Kentish Town-road, N.W., chemist

FLETCHER, THOMAS, Broadhurst Gardens, W. Hampstead, N.W., late Wallington electrician.

BREAKSPEAR, J., India-rubber worker, Deritend, Birmingham.

IMPORTS OF CHEMICAL PRODUCTS

AT

THE PRINCIPAL PORTS OF THE UNITED KINGDOM.

LONDON.

Week ending August 26th.

Acetic Acid—

Holland, 104 pkgs. Beresford & Co.
" 93 A. & M. Zimmermann

Acid Phosphates—

U. States, 600 pkgs. Bovril, Ltd.

Alkali—

France, 440 c. Arnati & Harrison

Alum—

Holland, 25 pkgs. Ohlenschlager

Ammonium Nitrate—

Germany, 1 pkge. Petri Brs.

Antimony—

Portugal, 5 t. F. Horne & Co.
Melbourne, 8 Welch, Perrin, & Co.
Hong Kong, 64 Melchers, Runge, & Co.
Sydney, 24 Laughland, Mackay, & Co.
E. Turkey, 100 J. Bamber
Sydney, 48 H. Bath & Son

Asbestos—

U. States, £1,072 Furness, Withy, & Co.
Holland, 20 Philipps & Graves
Belgium, 10 T. Palmer
U. States, 1,760 Bell's Asbestos Co.
Italy, 60 Schenker & Co.

Barium Chloride—

Germany, 73 pkgs. H. Lambert
" 25 Petri Brs.

Barytes—

Belgium, 23 cks. A. Zumbeck & Co.
" 41 J. L. Lyon & Co.
" 23 R. Beer
" 19 S. H. Willoughby
Holland, 21 J. L. Lyon & Co.
Germany, 20 P. Jantzen

Boracic Acid—

Italy, 6 pkgs. F. Boehm

Butyric Acid—

Germany, 3 pkgs. Philipps & Graves

Caoutchouc—

France, 4 c. Mess Parisiennes
E. Indies, 284 L. & I. D. Jt. Co.
" 6 Hale & Son
U. S. Colombia, 19 Stiebel Brs.

France, 3 H. Johnson & Son
Cape, 21 S. Figgins & Co.
Inhambane, 30 L. & I. D. Jt. Co.

Castor Oil—

E. Indies, 115 cs. Anderson, Weber, & Smith

France, 100 brls. Leach & Co.
Belgium, 56 Foerst Brs.

Italy, 30 B. & N. Whys Co.

Chemicals (otherwise undescribed)

Germany, 1 pkge. Hernu, Peron, & Co.

Holland, £10 F. Boehm

Germany, 92 T. H. Lee

" 62 Craven & Co.

" 5 W. J. Crook

" 472 29 pkgs. A. & N. Zimmermann

of Tartar—

2 pkgs.	J. L. Lyon & Co.
11	W. C. Bacon & Co.
31	Middleton & Co.
10	B. & F. Wf. Co., Ltd.
9	W. C. Bacon & Co.
3	H. R. Boyer
100 pkgs.	T. H. Lee
42 bgs.	Prunk, Davis, & Co.
17 cks.	B. & N. Wf. Co., Ltd.
1 pkge.	P. & O. Co.
143 pkgs.	Burt, Boulton, & Co.
433 pkgs.	Thames S. T. & L. Co., Ltd.
322	B. Jacob & Sons
12 pkgs.	Kuhner, Henderson, & Co.
20	Swanton & Co.
500 pkgs.	Ross & Deering
60	L. & I. D. Jt. Co.
617 pkgs.	Low, Son, & Co.
72	Culverwell, Brooks, & Co.
100 pkgs.	A. J. Humphrey
530	Boucher, Mortimore, & Co.
530	L. J. Levinstein & Sons
30	Leach & Co.
40	A. J. Humphrey
86	Leach & Co.
216	T. H. Lee
10	J. Forsey
30 t.	Stiebel Bros.
38	Churchill & Son
93	L. & I. D. Jt. Co.
213 pkgs.	J. Greig
262	Leach & Co.
523	E. Boustead & Co.
458	Beresford & Co.
53 cts.	Arbuthnot, Latham, & Co.
110 t.	L. & I. D. Jt. Co.
1 pkge.	Skilbeck Bros.
550 pkgs.	W. Shelcott
1,018	L. & I. D. Jt. Co.
1,116	Union L. Co., Ltd.
22 pkgs.	Leach & Co.
1 pkge.	Brumlen & Co.
1	B. & N. Wf. Co., Ltd.
200 pkgs.	J. W. Drysdale & Co.
1,000	J. Graves
100	F. Roberts
29 t.	Hicks, Nash, & Co.
27	Brown & Elmslie
40	Devitt & Hett
4	A. & W. Nesbitt
93	Beresford & Co.
16	Anning & Cobb
213 pkgs.	Hoare, Wilson, & Co.
85	Lewis & Peat
1 pkge.	Hernu, Peron, & Co.
10	J. Forsey
100 pkgs.	Seaward Bros.
100	G. Hornzee
40	Low, Sons, & Bedford
500 pkgs.	500 c.
250	250 c.
2,666	4,140 R. G. Hall & Co.
50	300 Page, Son, & East
1,000	1,000 Barrett, Tagant, & Co.
12	100 T. Beck
80	80 Prop. Sun Wf.

U. States,	39	244	Soundy & Sons
	1,000	1,000	Boake, Roberts, & Co.
"	500	500	J. Lucey & Sons
"	550	800	P. Windmuller & Co.
Germany,	1	6	Idris & Co.
U. States,	25	150	L. & I. D. Jt. Co.
"	250	1,420	Prop. Chmbln.'s Wf.
"	8	44	Beck & Pollitzer
"	600	600	B. & N. Whvs. Co.
"	750	750	J. Barber & Co.
"	525	1,088	Fellows, Morton, & Co.
Guano—			
E. Indies,	11 t.		Prop. Hay's Wf.
Iodine—			
Germany,	11 pkgs.		A. Gibbs & Sons
Iron Oxide—			
Austria,	16 cks.		Z. Cartwright Ltd.
"	26 brls.		T. & W. Farmiloe
Lead Acetate—			
Germany,	17 pkgs.		F. Boehm
Magnesium—			
Germany,	4 pkgs.		D. W. Greenhough
Manganese—			
Japan,	100 t.		D. E. Recknell
Manganese Oxide—			
Germany,	4 pkgs.		Petri Bros.
Manure—			
France,	30 t.		J. Burnett & Sons
Methyl Alcohol—			
Germany,	10 cks.		Lister & Biggs
"	8		L. & I. D. Jt. Co.
Mica—			
E. Indies,	4,460		W. M. Smith & Sons
Singapore,	16		"
Ceylon,	74		"
Ochre—			
Holland,	10 pkgs.		Phillipps & Graves
France,	356 cks.		W. Harrison & Co.
"	15		L. & I. D. Jt. Co.
Paraffin Wax—			
U. States,	6,132 pkgs.		J. H. Usmar & Co.
"	200 brls.		G. H. Frank
"	700		L. & I. D. Jt. Co.
Phosphate Rock—			
Aruba,	409 t.		G. M. Bauer
France,	130		J. Burnett & Sons
Pitch—			
Sweden,	300 brls.		M. Record
"	150		E. G. Sieveking
Plumbago—			
Germany,	10 cs.		T. H. Lee
"	2 cks.		R. Warner & Co.
Ceylon,	182		345 brls. J. Thredder, Son, & Co.
"	60		R. G. Hall & Co.
"	100		Prop. Sun Wf.
Potash—			
France,	185 c.		Petri Bros.
Potassium Bicarbonate—			
France,	10 pkgs.		Mory & Co.
Potassium Carbonate—			
France,	40 c.		Spies Bros & Co.
Potassium Sulphate—			
France,	507 pkgs.		9 cks. Mead, Son, & Co.
"	500		F. W. Berk & Co., Ltd.
Pumice Stone—			
France,	422		H. A. Schlesinger
Italy,	140		Stobbs, Wilson, & Co.
"	3 t.		B. & N. Whvs. Co.
"	6		O'Hara & Hoar
Pyrites—			
Spain,	925 t.		C. L. Vasey & Co.
Rosin—			
U. States,	750 brls.		Fairclough & Co.
"	2,000		J. Knight & Son
"	500		G. Nutter & Co.
Saltpetre—			
Germany,	108 bgs.		P. Hecker & Co.
"	70 cks.		T. Merry & Son
Chili,	9,010 bgs.		W. Montgomery & Co.
Sodium Acetate—			
France,	18 pkgs.		S. F. Waters & Co.
Sodium Hyposulphite—			
Belgium,	10 pkgs.		Beresford & Co.
Holland,	37		"
Stearine—			
Belgium,	246 bgs.		H. Hill & Sons
Strontium Nitrate—			
Holland,	4 pkgs.		B. & N. Wf. Co., Ltd.

Sulphur—

Italy,	27 t.	Pigou, Wilks & Co.
"	50	G. Boor & Co.
"	2½	Typke & King
"	21	J. Kitchen Ltd.
"	8	F. C. Devon & Co.
"	21	H. S. Smith & Co.
"	2	Hanson. Son, & Co.
"	500	A. D. White
"	15	F. Smith
Belgium,	5	Fuerst Brs
Tartar Emetic—		
Holland,	5 pkgs.	A. & M. Zimmermann
Tartaric Acid—		
Holland,	22 pkgs.	Middleton & Co.
"	14	B. & F. Wf. Co., Ltd.
"	3	F. C. Devon & Co.
Turpentine—		
U. States,	1,700 brls.	Nickoll & Knight
"	3,008	Prod. Broker's Co., Ltd.
"	1,600	Fairclough, Dodd, & Jones
Ultramarine—		
Belgium,	6 pkgs.	W. Harrison & Co.
Germany,	26	G. Steinhoff, Sons, & Co.
"	20 cks.	T. Hamilton
Austria,	21 brls.	Taylor Brs.
Holland,	1	C. J. Capes & Co.
Germany,	2 cs.	O. Konig & Co.
Varnish—		
Holland,	4 pkgs.	G. Rahn & Co.
France,	10	Stobbs, Wilson, & Co.
U. States,	16	Magee, Taylor, & Co.
"	5	Dawson Brs.
Verdigris—		
France,	12 pkgs.	B. & F. Wf. Co., Ltd.
White Lead—		
Germany,	10 cks.	H. Lambert
"	25	Colthurst & Harding
Holland,	20	Burrell & Co.
Germany,	21	G. F. Clifford
"	5	A. Stedman & Sons
France,	21	J. Watts & Sons
Zinc Oxide—		
Belgium,	1 ck.	R. W. Greeff & Co.
Holland,	8	A. Zumbek & Co.
"	25 brls.	M. Ashby, Ltd.
Germany,	75	J. Matton
"	17	H. Lambert

LIVERPOOL.

Week ending August 24th.

Acetic Acid—		
Hamburg,	5 cs.	
Alumina Sulphate—		
Rotterdam,	16 cks.	
Ammonium Sulphate—		
Marseilles,	9 cks.	
Antimony—		
Valparaiso,	270 bgs.	Hainsworth, Watson & Co.
Asbestos—		
Montreal,	500 bgs.	Irwin & Hepper
Barytes—		
Antwerp,	50 bgs.	
Boracic Acid—		
Leghorn,	68 cks.	
Caoutchouc—		
Havre,	4 brls.	Cunard S. S. Co., Ltd.
Castor Oil—		
Leghorn,	10 cs.	
Marseilles,	15	240 cks.
Chemicals (otherwise undescribed)		
Rotterdam,	8 cks.	
Chromium Acetate—		
Rotterdam,	10 cks.	
Colours—		
Ghent,	2 cs.	
Bremerhaven,	3	
In transit,	75 cks.	20
Antwerp,	12	J. T. Fletcher & Co.
Rotterdam,	10	
Cream of Tartar—		
Bordeaux,	1 ck.	
Dyestuffs—		
Cochineal		
Gr. Canary,	6 sks.	Sperling & Williams
Divi Divi		
Amsterdam,	164 bgs.	Brown, Geveke & Co.

Extracts

Marseilles,	5 cks.	
Fiume,	125 brls.	Oak Extract Co., Ltd.
Fustic		
Colon,	389 ps.	D. Midgeley & Sons
"	160	A. Dobell & Co.
Trieste,	103	Edwards Bros.
"	17 t.	Frotelle, Levy & Co.
"	5	J. Fletcher & Co.
Madder		
Marseilles,	7 cks.	P. Behrend
Orchella		
Lisbon,	23 bls.	A. Barbosa & Co.
"	197	
San Francisco,	20	Bartuing, Gebr.
Saffron		
Valencia,	3 cs.	
Valonia		
Smyrna,	200 t.	Barry Bros.
Dyestuffs (otherwise undescribed)		
New York,	3 bxs.	
Farina—		
Fiume,	170 bgs.	5 cks.
Antwerp,	3	J. T. Fletcher & Co.
Fiume,	50	C. J. Vander Veen & Bro.
Glucose—		
New York,	200 brls.	
Baltimore,	100	
Hamburg,	72 cks.	
Rouen,	10	Co-op. W'sale Society, Ltd.
Iodine—		
Valparaiso,	191 brls.	A. Gibbs & Sons
"	134	W. & J. Lockett
"	92	Lautaro Nitrate Co., Ltd.
Lead Chloride—		
Rouen,	1 ck.	Co op. W'sale Society, Ltd.
Lime—		
Valparaiso,	581 sks.	
Manganese—		
Poto,	1,820 t.	
Mica—		
New York,	5 brls.	T. Robinson & Son
Mineral White—		
Fiume,	100 bgs.	
Trieste,	100	Schroder & Co.
"	40 bls.	
Ochre—		
Marseilles,	18 cks.	
Havre,	1 brl.	Cunard S. S. Co., Ltd
Norfolk,	380	
Paint—		
New York,	1 brl.	Patent Deep Stamp, Co. M. Collet
Marseilles,	25 cks.	
Painters' Colours—		
Rotterdam,	5 cs.	1 ck.
Paraffin Scale—		
Philadelphia,	161 brls.	250 cs.
Phosphate—		
Antwerp,	205 t	
Pitch—		
Amsterdam,	26 cks.	
Bordeaux,	26	R. J. Francis
Plumbago—		
Genoa,	100 bgs.	G. Huntriss & Co.
Potash—		
Hamburg,	64 cks.	
Montreal,	5 brls.	Makin & Bancroft
Dunkirk,	97 dms.	
Potassium Carbonate—		
Hamburg,	4 cks.	
Pyrites		
Huelva,	3,117 t.	Matheson & Co.
"	1,764	Tennants & Co.
Rosin—		
Bordeaux,	371 cks.	
N. Orleans,	1,500 brls.	
Savannah,	8,802	
Saltpetre—		
Hamburg,	50 brls.	
Rotterdam,	68 bgs.	
Karachi,	109	
Soap—		
Naples,	47 cs.	P. Behrends

Marseilles,	40	Ramsay's Direct Foreign Service
New York,	9	Colgate & Co.
In transit,	40	
Bari,	221	
Soapstone —		
Bordeaux,	250 bgs.	G. G. Blackwell
Sodium Nitrate —		
Iquique,	7,024 bgs.	F. Huth & Co.
Stearine —		
Antwerp,	5 bgs.	
Tallow —		
New York,	100 tcs.	Bell Sons & Co.
Baltimore,	18 hds.	
Boston,	83	G. H. Hammond & Co.
Philadelphia,	143 23	
Boston,	162 125 hds.	288 brls.
Tar —		
Archangel,	4,020 brls	
Tartar —		
Naples,	6 cks.	
Bordeaux,	11	
Valparaiso,	10 sks.	Munch & Droste
Tartaric Acid —		
Rotterdam,	7 cks.	30 kgs.
Tin Chloride —		
Amsterdam,	15 cks.	
Turpentine —		
Savannah,	3,615 brls.	
Ultramarine —		
Hamburg,	2 cks.	40 cs.
Rotterdam,	7	7
Varnish —		
Boston,	1 brl.	
Waste Salt —		
Hamburg,	340 t.	
White Lead —		
Ghent,	1 ck.	J. T. Fletcher & Co.
"	2	
Zinc Oxide —		
New York,	50 brls.	
Marseilles,	130 cks.	
Rotterdam,	25	
Zinc Skimmings —		
New York,	86 bgs.	
Baltimore,	29	21 brls.

HULL.

Week ending August 26th.

Alum —		
Rotterdam,	35 cks.	W. & C. L. Ringrose
Barytes —		
Antwerp,	46 cks.	
Carbolic Acid —		
Libau,	11 cks.	
Chemicals (otherwise undescribed)		
Stettin,	32 cks.	Wilson, Sons, & Co., Ld.
Rotterdam,	5	W. & C. L. Ringrose
Bremen,	1	J. Pyefinch & Co.
Antwerp,	76 pks.	Wilson, Sons, & Co., Ld.
Hamburg,	30 brls	"
Coral Ore —		
Hamburg,	5 cks	Wilson, Sons, & Co., Ld.
Colours —		
Ghent,	80 cks.	Bailey & Leatham
"	42	
Flushing,	30 pks.	G. Lawson & Sons
Amsterdam,	3 cks.	W. & C. L. Ringrose
Stettin,	10 brls	W. & C. L. Ringrose
Rotterdam,	25 pks.	W. & C. L. Ringrose
"	4 cks.	Hutchinson & Son
Hamburg,	4 cs.	Wilson, Sons, & Co., Ld.
Flushing,	61 cks.	39
Dextrine —		
Stettin,	35 bgs.	Wilson, Sons, & Co., Ld.
"	50	
Dyestuffs —		
Alizarine		
Flushing,	71 pks.	G. Lawson & Sons
"	32 cs.	35 cks.

Madder		
Rotterdam,	2 cks.	W. & C. L. Ringrose
"	1	J. Pyefinch & Co.
Farina —		
Ghent,	284 bxs.	Bailey & Leatham
Harlingen,	500 bgs.	
Stettin,	200 pks.	Wilson, Sons, & Co., Ld.
Glucose —		
Stettin,	500 bgs.	
New York,	20	654 brls.
Bremen,	20	J. Pyefinch & Co.
Rotterdam,	50	Hutchinson & Son
Manure —		
Ghent,	1,632 bgs.	Bailey & Leatham
Amsterdam,	100	Hirschfeld Bros.
Paint —		
New York,	15 cs.	Wilson, Sons, & Co., Ld.
Copenhagen,	10 pks.	
Phosphate —		
Antwerp,	qty.	E. Kipps & Co.
Phosphate Rock —		
Port Royal,	3,500 t.	
Beaufort,	990	
Pitch —		
Amsterdam,	13 cks.	H. F. Pudsey
Hamburg,	59 brls.	
Rotterdam,	1 ck.	Hutchinson & Son
Potash —		
Dunkirk,	38 dms.	1 ck. 34 pks. Wilson, Sons, & Co., Ld.
Rosin —		
Savannah,	471 brls.	
Saltpetre —		
Hamburg,	200 brls.	120 bgs. Wilson, Sons, & Co., Ld.
Soap —		
Gothenburg,	1 cs.	Wilson, Sons, & Co., Ld.
Soda —		
Antwerp,	6 brls.	W. & C. L. Ringrose
Tallow —		
New York,	15 tcs.	Wilson, Sons, & Co., Ld.
Tar —		
Uleaborg,	1,000 brls	200 hf. brls.
Tartaric Acid —		
Rotterdam,	2 cks.	G. Lawson & Sons
"	1	Woodhouse & Co.
Hamburg,	10 kgs.	Wilson, Sons, & Co., Ld.
Rotterdam,	2 cks.	Hutchinson & Son
Turpentine —		
Savannah,	1,500 brls.	
Libau,	152	
Ultramarine —		
Hamburg,	6 pks.	Wilson, Sons, & Co., Ld.
Varnish —		
Hamburg,	108 pks.	
Vermillion —		
Bremen,	1 cs.	Veltmann & Co.
White Lead —		
Ghent,	9 cks.	Bailey & Leatham
Antwerp,	88	
Rotterdam,	56	W. & C. L. Ringrose
"	22	Sissons Bros. & Co.
"	7	Gibson Bros.
Hamburg,	19 pks.	Wilson, Sons, & Co., Ld.
Rotterdam,	10 cks.	Hutchinson & Son

GLASGOW.

Week ending August 31st.

Acetic Acid —		
Rotterdam,	5 cks.	J. Rankine & Son
Ammonium Acetate —		
Rotterdam,	1 brl.	
Aniline —		
Rotterdam,	12 brls.	2 bxs. J. Rankine & Son

Barium Sulphate —		
Antwerp,	200 bgs.	98 cks.
Barytes —		
Hamburg,	22 cks.	
Rotterdam,	46	
Carbolic Acid —		
Hamburg,	1 ck.	
Castor Oil —		
Antwerp,	56 cs.	
Marseilles,	191 pkgs.	
Cellulose —		
Hamburg,	170 t.	
Colours —		
Amsterdam,	2 cks.	
Antwerp,	2	
Rotterdam,	13 pkgs.	
Cottonseed Oil —		
New York,	20 brls.	
Cream of Tartar —		
Marseilles,	29 brls.	
Dyestuffs —		
Alizarine		
Rotterdam,	41 cks.	J. Rankine & Son
Extracts		
Antwerp,	40 cks.	
Marseilles,	27 brls.	
Indigo		
Rotterdam,	10 cts.	J. Rankine & Son
Madder		
Marseilles,	15 cks.	
Farina —		
Hamburg,	50 bgs.	
Glucose —		
New York,	266 brls.	
Iron Oxide —		
Fiume,	26 brls.	Ferguson & Reid
Magnesia —		
Hamburg,	25 cks.	
Ochre —		
Rouen,	200 cks.	
Marseilles,	62 brls.	
Paint —		
Rouen,	1 cs.	
New York,	1 brl.	
Painters' Colours —		
Antwerp,	3 cs.	1 ck.
Pitch —		
Archangel,	500 brls.	Young, Falconer & Co.
"	100 cks.	
"	300	Maclean, Todd & Co.
Potash —		
Hamburg,	72 cks.	
Rosin —		
New York,	1,050 brls.	
Saltpetre —		
Hamburg,	61 cks.	
Soap —		
Marseilles,	1 cs.	16 bxs.
Sodium Acetate —		
Rouen,	9 cks.	
Sodium Prussiate —		
Antwerp,	10 cks.	
Stearine —		
Antwerp,	76 bgs.	
Tallow —		
New York,	50 hds.	25 tcs.
Tar —		
Archangel,	2,050 brls.	Young, Falconer & Co.
"	2,195	
"	1,350	Maclean, Todd & Co.
Marseilles,	15	
Tartar —		
Fiume,	2 cks.	W. Renwick & Co.
Tin Oxide —		
Rotterdam,	1 ck.	J. Rankine & Son
Varnish —		
New York,	15 brls.	
Verdigris —		
Marseilles,	3 brls.	
Waste Salt —		
Hamburg,	170 t.	
White Lead —		
Ghent,	9 cks.	
Rotterdam,	88	
Antwerp,	5	
Zinc Ashes —		
Antwerp,	2 cks.	

Zinc Oxide —		
Antwerp,	55 cks.	
Rotterdam,	25	J. Rankine & Son
"	25	
Zinc White —		
Hamburg,	8 cks.	

TYNE.

Week ending August 27th.

Barytes —		
Rotterdam,	67 cks.	Tyne S.
Antwerp,	69	
Colours —		
Rotterdam,	1 cs.	1 brl. Tyne S.
Hamburg,	4 cks.	
Phosphate —		
Ghent,	265 t.	
Pyrites —		
Huelva,	1,521 t.	
Rosin —		
Baltimore,	426 brls.	
Wilmington (U.S.A.),	4,616 lb.	
Saltpetre —		
Hamburg,	3 cks.	Tyne S.
Soap —		
Rotterdam,	2 cs.	Tyne S.
Sulphur —		
Pomaron,	1,350 t.	
"	2,270	Mason & Co.
Tar —		
Archangel,	1,430 brls.	
Turpentine —		
Wilmington (U.S.A.),	100 cks.	
Zinc Ashes —		
Christiania,	1 bg.	
Zinc Oxide —		
Antwerp,	12 brls.	Tyne S.

GOOLE.

Week ending August 27th.

Alkali —		
Hamburg,	2 cks.	
Calais,	39	
Alum —		
Rotterdam,	5 cks.	
Caoutchouc —		
Boulogne,	2 cks.	
Caustic Soda —		
Calais,	23 dms.	
Copper Ore —		
Seville,	650 t.	
Dyestuffs —		
Alizarine		
Rotterdam,	63 cks.	
Extracts		
Rotterdam,	20 cks.	
Indigo		
Rotterdam,	5 cts.	
Dyestuffs (otherwise undescr.)		
Boulogne,	15 cks.	16 cs. 48 lb.
Farina —		
Hamburg,	200 bgs.	
Delfsyzhl,	1,510	
Glucose —		
Hamburg,	24 cks.	
Pyrites —		
Seville,	990 t.	
Saltpetre —		
Rotterdam,	200 bgs.	
Soda —		
Rotterdam,	107 cks.	
Waste Salt —		
Hamburg,	269 cks.	40 t.
Zinc Sulphate —		
Rotterdam,	5 cks.	

GRIMSBY.

Week ending August 26th.

Chemicals (otherwise undescr.)		
Hamburg,	8 cks.	37 pkgs.
Rotterdam,	9	
Dyestuffs (otherwise undescr.)		
Dieppe,	49 cks.	
Farina —		
Hamburg,	25 bgs.	
Size —		
Antwerp,	3 cks.	
Zinc Ashes —		
Antwerp,	2 cs.	

EXPORTS OF CHEMICAL PRODUCTS

OF

THE PRINCIPAL PORTS OF THE UNITED KINGDOM.

LONDON.

Week ending August 30th.

Acids—		
Madras,	9 cs. 12 drs.	£28
Natal,	21	42
Bangkok,	5	10
Alkali—		
E. London,	6 c.	£5
Alga Bay,	1 t. 10	7
Alum Cake—		
Christiana,	22 t.	£50
Calcutta,	40 8 c.	141
Ammonia (Liquid)—		
Hamburg,	10 drs. 4 c.	£28
Cologne,	3 cs. 4	26
Hong Kong,	5 cs. 4	26
Mauritius,	12	14
Brisbane,	1 t. 20 cks.	35
Malaga,	2	13
Rosario,	2 cydls.	23
Ammonium Carbonate—		
Satin,	1 t. 2 c	£26
Amsterdam,	3 kgs.	7
Sydney,	10 cs.	17
St. John's, N.B.,	10	16
Bordeaux,	1	27
Paris,	7 3	168
Il. Ayres,	1	38
Ammonium Chloride—		
Gothenburg,	1 t. 1 c.	£38
Cologne,	2 4	64
Montreal,	6	11
Constantinople,	9	16
Rotterdam,	19 cks	100
B. Ayres,	15	29
Varna,	2 10	82
Galatz,	1 13	54
Ammonium Nitrate—		
Alga Bay,	12 rns.	£114
Ammonium Sulphate—		
Leghorn,	20 t.	£490
Demerara,	16 5 c.	217
Bremen,	50	700
Hamburg,	394 15	5,420
Arsenic—		
Boston,	50 t.	£650
Bisulphite of Lime—		
Sydney,	3 t. 3 c.	£10
Borax—		
Dunedin,	5 c	£8
Melbourne,	5	278
Hamburg,	8 cks.	66
Boracic Acid—		
Pensels,	6 cks.	£58
R. Ayres,	2	8
M. Video,	6	38
Carbolic Acid—		
Marseilles,	80 cks.	£604
Mosul Bay,	10 drs.	15
Carbolic Acid and Carbon Bisulphide—		
Montreal,	1 cs. 7 cks.	£19
Carbon Bisulphide—		
Sydney,	25 crts.	£25
M. Video,	5 c.	10
Caustic Soda—		
Cape Town,	4 c.	£6
E. London,	9	16
Dunedin,	10 3	119
Hong Kong,	4	6
Chemicals (otherwise undescribed)		
Shanghai,	2 cs.	£25
Otago,	1 1 ck.	12
Alga Bay,	3	16
Citric Acid—		
New York,	15 kgs.	£125
Hamburg,	10 c.	57
Calicut,	1	10
Sydney,	5	42
Rotterdam,	4 10	118
Cape Town,	1 cs.	5
Bombay,	1 1 pkg.	9
St. Petersburg,	1 t. 2	186
Amsterdam,	6 kgs.	51
Lisbon,	8 cks.	70
Copenhagen,	2	17
Rotterdam,	18	151
Coal Products—		
Altarine		
Montreal,	5 cks.	£76

Aniline Dye		
Tientsin,	10 cs.	£100
Sydney,	1	9
Aniline Oil		
Ghent,	1 ck.	£13
Rotterdam,	10 drms.	300
Dunkirk,	4	130
Anthracene		
Rotterdam,	513 cks.	£2,406
Benzol		
Rotterdam,	38 drms 20 cks.	£637
Terneuzen,	16	140
Hamburg,	11	125
Boulogne,	30	242
Coal Tar Dyes		
Kobe,	15 cs.	£139
Creosote		
Boulogne,	1 cs.	£10
Dieppe,	15,400 glns.	160
Naphtha		
Boulogne,	10 cks.	£55
Naphthaline		
Hamburg,	13 cks.	£55
Marseilles,	50	50
Paraffin Scale		
Hong Kong,	6 drs.	£28
Paraffin Wax		
Hobart,	15 tanks	431
Launceston,	20 bgs.	56
Pitch		
Gijon,	374 t.	£449
Antwerp,	846	988
Boulogne,	3 crates	13
Boston,	500 cks. 450 brls.	444
Otago,	10	19
Baltimore,	698	303
Alexandria,	300	104
Christiana,	40 pkgs.	15
Palermo,	9	9
Tar		
Natal,	300 drs.	£16
Boston,	325 brls.	145
Otago,	10 cks.	10
Alga Bay,	50	8
Cape Town,	30	28
Gothenburg,	99	62
Tar Oil		
Paris,	20 cks.	£50
Toluol		
Rotterdam,	20 pns.	£180
Coal Products (otherwise under.)		
Gibraltar,	12 brls.	£10
Malta,	10	10
Copperas—		
Rotterdam,	4 cks.	£11
Copper Sulphate—		
Malaga,	1 t. 1 c	£16
Wellington,	12	10
Treport,	10	172
Danzig,	11 5	144
Genoa,	1	16
Cream of Tartar—		
Newcastle,	8 c.	£31
Sydney,	4 t. 10	355
Lyttelton,	2 10	202
Dunedin,	25 pkgs.	98
Melbourne,	2 10	190
Disinfectants—		
Hamburg,	30 cks.	£150
Kingston,	6 pkgs. 120 drs.	61
Hong Kong,	182	96
Penang,	100	35
St. John's, N.F.,	2 cs.	10
Kustendjie,	11	20
Flowers of Sulphur—		
Cape Town,	1 t. 7 c.	£15
Guano—		
Dunkirk,	100 t.	£550
Genoa,	50	50
Hypophosphite of Lime—		
Philadelphia,	11 c.	£200
Manure—		
Marseilles,	99 t 3 c.	£600
Lyttelton,	200	840
Riga,	245 13	708
Morlaix,	106 10	470
Rouen,	72 10	445
Sables,	131 17	1,200
Treport,	59 17	350
Kingston,	2 18	31
Lisbon,	39 13	165
Memel,	778	1,725
Libau,	252 13	680
Santander,	152 2	1,300
Huelva,	153 6	590
Mauritius,	15 t. 6 c.	72

Muriatic Acid—		
Oporto,	15 c.	£10
Oxalic Acid—		
Brussels,	1 t	£28
St. Petersburg,	5	140
Genoa,	1	29
Potash—		
Flushing,	4 cks.	£30
Hong Kong,	5 cs.	30
Potash Salts—		
Townsville,	4 t. 6 c.	£507
Delagoa Bay,	7 6	898
Potassium Bicarbonate—		
New York,	1 ck.	£8
Potassium Bichromate—		
Calcutta,	2 cks.	£25
Potassium Chlorate—		
Madrid,	2 cs.	£76
Batoum,	30 kgs.	114
Hong Kong,	1 t.	71
Stockholm,	1	12
Potassium Permanganate—		
Hong Kong,	5 c.	£30
Salt—		
Hamburg,	1 c.	£18
Saltpetre—		
Melbourne,	2 t.	£45
Alga Bay,	2 10 c.	58
Dunedin,	5	6
Flushing,	9	15
Oporto,	1 16	37
Gibraltar,	7 10	151
Sydney,	6	134
Brisbane,	1 1	44
Sheep Dip—		
Natal,	2 cs.	£5
Pt. Elizabeth,	6 t. 1 c.	£200
Blenheim,	10 cks.	280 pkgs. 214
Timaru,	80	96
Lyttelton,	578	£27
Wanganui,	449 drs.	172
Auckland,	50	30
Wellington,	155	113
Adelaide,	100 cs.	300
Melbourne,	100 kgs.	118
Omaru,	80	54
Soda Crystals—		
Cape Town,	5 t. 5 c.	£18
Sodium Bicarbonate—		
Lyttelton,	10 c.	£4
Wellington,	2 t. 3	14
Adelaide,	5	33
Sodium Carbonate—		
Alga Bay,	4 c.	£9
Sodium Hyposulphite—		
Calcutta,	8 t. 2 c.	£52
Sodium Nitrate—		
St. Kitts,	25 t.	£231
Sulphur—		
Natal,	4 t. 10 c.	£33
Cape Town,	300 pkgs.	232
Sulphur Dioxide—		
Melbourne,	4 drs.	£29
Sulphuric Acid—		
E. London,	15 c.	£7
Calicut,	10 cs.	10
Colombo,	10	10
Bombay,	1 t. 8 c.	14
Alga Bay,	8 15	74
Tartaric Acid—		
Newcastle,	5 c.	£25
Lyttelton,	15	78
M. Video,	2 cks.	50
Sydney,	1 t.	130
Melbourne,	5	25
Halifax,	6	99
Alga Bay,	4	24

LIVERPOOL.

Week ending August 30th.

Acetic Acid—		
Vera Cruz,	1 t.	£15
Alum—		
Seville,	1 t. 18 c	£10
Montreal,	14	3
Calcutta,	28	155
Bombay,	13 10	73
M. Video,	1 9	7
Constantinople,	6	20
Santos,		
Havana,	7 7	37
	1 6	6
Ammonium Carbonate—		
Corunna,	10 c.	£15
Marseilles,	4	6
Ammonium Chloride—		
Galatz,	9 c.	£11
Amsterdam,	6 2 q.	11
Malaga,	1 3	36
Alexandria,	10	18
Alexandria,	1 2	38
Havre,	1	24
Antwerp,	1 9 3	34
Piraeus,	6	10
Odessa,	11	18
Constantinople,	1	35
Ammonium Sulphate—		
Honolulu,	81 t. 1 c. 3 q.	£1,084
Hamburg,	63 18 1	942
Demerara,	80 8 3	1,117
Genoa,	9 4	135
Rotterdam,	49 7 1	750
Antimony—		
Bombay,	5 c.	
Asbestos—		
Hong Kong,	2 cs.	
Barytes—		
Lisbon,	6 cks.	
Bleaching Powder—		
Boston,	377 cks.	
Naples,	36	
New York,	154	
Philadelphia,	92	
Chicago,	61 bxs.	
Havana,	7 brls. 9 cs.	
Leghorn,	27 cks.	
Puerto Alegre,	4	
Boracic Acid—		
Yokohama,	1 t.	£38
Rotterdam,	2 7 c. 2 q.	94
Borax—		
Danzig,	1 t.	£30
Rotterdam,	5 6 c. 2 q.	149
Hamburg,	1 15	49
Santos,	19 3	31
Cienfuegos,	6	9
Bremen,	1 11	40
Copenhagen,	1	35
Carbolic Acid—		
Rotterdam,	10 t.	£558
Odessa,	19 c. 1 q.	61
Genoa,	9 3	32
Hamburg,	1 5	83
Calcutta,	3 2	28
Constantinople,	4 3	12
Carbon Bisulphide—		
M. Video,	5 c.	£11
Caustic Potash—		
Melbourne,	2 t. 4 c.	£64
Hamburg,	1 1	27
Chicago,	12	14
Caustic Soda—		
Alicante,	35 dms.	
Barcelona,	50	
Bilbao,	15	
Bombay,	29	
Bremen,	5 brls.	
B. Ayres,	50 dms.	
Cadiz,	6	
Corinto,	29	
Corunna,	30	
Genoa,	159	
Hamburg,	77	
Hamilton,	50	
Havre,	30	
Hiogo,	235	
Madeira,	10	
Malaga,	130 10 cks.	
Malta,	13	
Manila,	400	
M. Video,	150	
Montreal,	160	
New York,	427	
Odessa,	295	
Ontario,	83	
St. Petersburg,	567	
San Sebastian,	105	
Seville,	266	
Singapore,	50 kgs. 50 tins.	
Sydney,	19 20	
Algiers,	50	
Baltimore,	235 brls.	
Catania,	35	
Cincinnati,	60	

Fiume, 30		Ibrail, 6		Old Calabar, 287		Soda Alkali—	
Galatz, 50		Manaos, 19		Orebak, 150		Melbourne, 40 bbls.	
Havana, 70		M. Video, 4	2 cs.	Port Natal, 5		Sydney, 40	
Hong Kong, 80		Richibucto, 80 kgs.		Rangoon, 2,504		Syra, 45	
Leghorn, 139		Rio de Janeiro, 9		Rio de Janeiro, 2	3	Soda Ash—	
Messina, 48		St. Thomas, W.I., 8		Rotterdam, 31		Adelaide, 54 bbls.	
Rouen, 36		Valparaiso, 39	22	Trinidad, 14		Bahia, 5	
Samarang, 16		Aux Cayes, 254		Wellington, 402	10	Baltimore, 1,548 bbls.	
Toronto, 50		Axim, 1		Annatto Bay, 5		Barcelona, 25 cks.	
Valencia, 70		Bombay, 200		Antigua, 10		Bombay, 11	
Chemicals (otherwise undescribed)		Bremerhaven, 20	1 bbl.	Baltimore, 475		Boston, 71	1,100
Naples, 1 t.	£33	Dunedin, 24		Boston, 357		B. Ayres, 106	110
Antwerp, 16 c. 1 q.	28	Havana, 1		C. C. Castle, 11	12	Ghent, 17	
Rotterdam, 14	28	Hong Kong, 210		Halifax, 500		Hamburg, 325	
Hamburg, 10	1	Port Louis, 455		Kingston, Jam., 5		Hamilton, 320	
Odessa, 11	350	Rotterdam, 6		Lagos, 300		Lisbon, 4	
Beyrout, 11	19	St. John's, Nfld., 302	13	London, Ont., 13		Maranham, 25	45
Shanghai, 2 15	1 92	San Juan, 254		New York, 65		Melbourne, 180	
Cabedello, 1 cs.	7	Sulina, 3		Sydney, 435		Merritt, 50	
New York, 9 5	223	Vera Cruz, 14		Victoria, W.C.A., 10 t. 14 c.		Montreal, 120	1
China Clay—		Painters' Colours—		Salt Cake—		New York, 66	1,5
New York, 100 t.		Antwerp, 15 kgs.	1 bx.	Gijon, 55 t. 5 c.	£96	Oporto, 10	
Rio de Janeiro, 6		Bahia, 20 fks.	10	Saltpetre—		Philadelphia, 110 cks. 1,501	
Bombay, 25		Baltimore, 8 cks.		Rosario, 2 t. 10 c.	£57	Rio de Janeiro, 250 cks.	
Boston, 665		Beyrout, 25	4 cs.	Penedo, 1 14 1 q.	36	St. Petersburg, 70	
Chloride of Lime—		Cartagena, N.G., 2		Montreal, 1 5 1	28	Wellington, 21	
Pt. Natal, 2 t. 1 c. 3 q.	£18	Magog, 2		Tehuantepec, 1	24	Amsterdam, 250 bgs.	
Citric Acid—		Maracaibo, 100		Rio de Janeiro, 17 3	21	Antwerp, 100	
Cardenas, 1 c.	£9	Montreal, 81 30		Carthage, N.Z., 2 5	58	Havana, 3	
Lisbon, 5	41	Para, 15 10		Savanna, 11	17	Naples, 4	
Coal Products—		Amsterdam, 5 6	6 dms.	Sheep Dip—		Passages, 25	
Alizarine Oil		B. Ayres, 30	18 100 bbls.	Cape Town, 3 t.	£100	Rotterdam, 3	
Magog, 7 cks.		Cabedello, 8	1	E. London, 8 c. 3 q.	15	Rouen, 150	
Aniline Colours		Calcutta, 12 320		Montreal, 1	22	Sydney, 163	
Genoa, 1 cs.		Havre, 20		Natal, 16 2	30	Toronto, 7	
Shanghai, 25 cks.		Maranham, 6 pkgs.	200	Rangoon, 2 5	73 dms.	Venice, 7	
Aniline Salt		N. Orleans, 50 dms.		B. Ayres, 2 5	62	Soda Crystals—	
New York, 1,743 c.		New York, 32	2	Size—		Alexandria, 20 bbls.	
Tar		Odessa, 41		Magog, 7 cks.		Bahia, 15	15 cks.
Bahia, 10 bbls.		Pernambuco, 50		Rouen, 19		Batavia, 15	30
Port Natal, 900 dms.		Santos, 5 cs.	265	Soap—		Hamilton, 40	
Ibrail, 20 bbls.		Savanna, 1	70	Accra, 2 cs.		Kingston, Jam., 6	
Copperas—		Teneriffe, 156		Alexandria, 1		Montreal, 250	
Las Palmas, 4 t. 4 c.	£10	Valparaiso, 300		Algoa Bay, 1,200 bxs.		N. Orleans, 2 cs.	
Alexandria, 9 9	17	Paraffin Wax—		Amsterdam, 145		Pernambuco, 100	
Montreal, 4 3	7	Dedeagatch, 22 bgs.		Annatto Bay, 30		Philadelphia, 447	
Copper Sulphate—		Para, 4 cks.		Antwerp, 15		St. Petersburg, 40	
Gothenburg, 5 t. 2 c.	£75	Rio de Janeiro, 4 cs.		Bathurst, 30		Amsterdam, 100	
Stettin, 1 3	90	Phosphate—		Bombay, 290 5		B. Ayres, 50	
Copenhagen, 5 3	2 q.	Hamburg, 20 t. 3 c.	£100	Buguma, 1		Demerara, 30	
Amsterdam, 3 1 2	43	Phosphorus—		Calcutta, 500		Gibraltar, 67	
Copenhagen, 10 10	7	B. Ayres, 2 t. 2 c. 1 q.	£286	Cape Town, 1,614 1		New York, 56 30	
Stockholm, 1 2 1	15	Plumbago—		Colombo, 11	1 bbl.	St. Catherine's, 25	
Rouen, 10	168	Seville, 6 bgs.		Demerara, 162		St. John's, Nfld., 20	
Galatz, 10	7	Potash—		Durban, 40		Toronto, 150	
Ancona, 1 2 3	16	Corunna, 5 c.	£6	Ghent, 60	5	Sodium Baborate—	
Cream of Tartar—		Potash Crystals—		Gibraltar, 15 25		Hamburg, 5 cks.	
Cardenas, 1 c.	£6	N. Orleans, 6 c. 2 q.	£49	Havre, 300		Montreal, 28 bbls.	
Santos, 15 2 q.	65	Potassium Bichromate—		Sodium Bicarbonate—		Antwerp, 195 kgs. 2 cks.	
Dried Blood—		Salonica, 1 t. 2 c.	£30	Antwerp, 195 kgs. 2 cks.		Auckland, 40	
Gr. Canary, 15 t. 5 c.	£137	Alexandria, 17	96	Beyrout, 40		Bombay, 40	
Rouen, 66	561	Vera Cruz, 1 3 q.	5	Bordeaux, 20		Calcutta, 750	
Farina—		Potassium Carbonate—		Cantonbury, 20		Copenhagen, 93 20	
Gothenburg, 2 cks.		Chicago, 15 c.	£19	Havre, 135		Hio, 1,000	
Guano—		Potassium Chlorate—		Kongsberg, 20		Lisbon, 90	
Venice, 981 t.	£1 593	New York, 1 t. 4 c.	£77	Marseilles, 97 37		Melbourne, 800	
Carthage, Sp. 36 12 c.	348	Gutajewsky, 2 10	130	Montreal, 150		M. Video, 70	
Lime—		Venice, 5	286	Geneve, 102		Otago, 40	
Gr. Bassam, 2 t. 10 c.	£6	Corunna, 1	76	Gr. Bassa, 170	200	Rouen, 100	
Axim, 9 10	21	Valparaiso, 1	5	Halifax, 270		Smyrna, 140	
Limestone—		Malaga, 2 1 q.	8	Lagos, 40		Sydney, 268	
Antwerp, 2 t. 18 c.		St. Petersburg, 38 3	2,423	Lyttelton, 40		Trieste, 40	
Litharge—		Hamburg, 1	56	Naples, 12		Valencia, 140	
Malaga, 1 ck.		Hong Kong, 1 10	90	New York, 100		Wellington, 25	
Magnesia—		Vera Cruz, 1 1	6	Penang, 5		Yokohama, 1,300	
Paris, 5 cs.		Sydney, 2 10	152	Rangoon, 6		Amsterdam, 40 22	
Magnesium Chloride—		Rotterdam, 1	59	Salt Pond, 50		Bilbao, 40	
Bombay, 7 t. 15 c.	£16	Antwerp, 1	67	San Fernando, 200		Brisbane, 100	
Porto Alegre, 5 3	14	Bari, 10	40	Sourabaya, 600		Dunkirk, 20	
Singapore, 20 dms.		Rio de Janeiro, 12	43	Surinham, 10		Ghent, 10	
Manganese—		Hio, 20	1,193	Tangier, 20		Kobe, 1,000	
Hamburg, 16 cks.		Potassium Prussiate—		Teneriffe, 210		Nantes, 180	
Manure—		Vera Cruz, 2 c. 1 q.	£11	Toronto, 763		New York, 100	
Teneriffe, 30 t. 7 c. 1 q.	£238	Quicksilver—		Victoria, Canada, 50		Rouen, 30	
Rocheport, 607 19	1,491	Savanna, 9 bbls.		Yokohama, 7		St. John's, Nfld., 30	
Genoa, 188 18	1,215	Salt—		Soda—		San Juan, 30	
St. Nazaire, 1,010 3	4,906	Antwerp, 125 t.		Boston, 50 dms.		Seville, 50 20 10 lb	
Havre, 180 3	1,102	Bahia, 1 17 c.		Genoa, 100 bgs.		Sodium Carbonate—	
Metallic Sodium—		Boston, 100				Barcelona, 19 cks.	
Rotterdam, 3 t. 9 c.	£609	Brussels, 1 13				Sodium Chlorate—	
Ochre—		Calcutta, 2,350				Antwerp, 40 kgs.	
Demerara, 80 kgs.		Cameroons, 30 2				Genoa, 40	
Rotterdam, 62 bgs.		Dunedin, 5				Hamburg, 40	
Oxalic Acid—		Dunkirk, 150				Rotterdam, 20	
Trieste, 1 t. 2 c. 3 q.	£32	Gr. Bassa, 10					
Paint—		Gr. Bassam, 27 10					
Bathurst, 20 dms.		Honolulu, 12 10					
Calcutta, 5		Lyttelton, 249 16					
Demerara, 140 kgs. 5 cks.		Me bourne, 91					
Galatz, 8		Montreal, 2,274 19					
Hamburg, 4 200 6 7 bbls.		Norrkoping, 123 3					

Sodium Hyposulphite—

Madras, 1 cs.

Sodium Silicate—

Wellington, 10 brls.

Barcelona, 50 cks.

Hamburg, 10 tks.

Lisbon, 32 cks.

Montreal, 30

Rotterdam, 15

Sulphur—

Montreal, 201 t. 12 c.

Boston, 200 8

Trinidad, 12 18 2 q.

Rouen, 15 3

Savannah, 5

Superphosphate—

Gr. Canary, 2 t.

Nantes, 618 2 c. 1 q.

Venice, 800 14 1

Tarlar—

Cardenas, 1 ck.

Tartaric Acid—

Havana, 2 c.

Turpentine—

Bathurst, 20 dms.

Bremershaven, 5 brls.

Varnish—

Demerara, 1 cs. 10 dms.

Genoa, 6 cks.

New York, 12 cs.

Coquimbo, 5 cs.

Hong Kong, 50 dms.

White Lead—

Calcutta, 160 kgs.

Zinc Chloride—

Bombay, 1 t. 17 c. 1 q.

HULL.

Week ending August 26th.

Alkali—

Abo, 21 cks.

Ammonium Sulphate—

Dunkirk, 707 bgs.

Hamburg, 266

Stettin, 581

Aniline Salts—

New York, 12 cs.

Bleaching Powder—

Gothenburg, 14 cks.

Stettin, 34

Caustic Soda—

Danzig, 52 dms.

Gothenburg, 17

Chemicals (otherwise undescribed)

Abo, 15 cks. 1 cs.

Antwerp, 3 26 188 pgs.

Bremen, 20

Bombay, 1,035

Christiania, 10

Danzig, 47

Gothenburg, 165 22 251

Hamburg, 4 258 5

Kurrachee, 200

New York, 10

Rouen, 3

Rotterdam, 3 10

Stettin, 20 3

Stockholm, 41

Cottonseed Oil—

Antwerp, 208 cwt.

Amsterdam, 72

Bremen, 99

Christiania, 242

Flushing, 170

Gothenburg, 150

Hamburg, 193

Rotterdam, 2,008

Stettin, 100

Creosots—

Dunkirk, 25 cks.

Gothenburg, 150

Dyestuffs (otherwise undescribed)

Danzig, 17 cks.

Rotterdam, 2 1 cs.

Stettin, 66 bls.

Farina—

Rotterdam, 6 cks.

Guano—

Hamburg, 202 bls.

Linseed Oil—

Abo, 42 cwt.

Bombay, 300

Bergen, 55

Christiania, 153

Christiansand, 34

Drontheim, 41

Hamburg, 69

Rotterdam, 3

Savanger, 58

Manure—

Danzig, 510 bgs.

Rouen, 250 bls.

Naphtha—

Antwerp, 2 cks.

Dunkirk, 5

New York, 1

Painters' Colours—

Antwerp, 14 cks.

Amsterdam, 30

Bremen, 1

Bombay, 124 cs. 822 pks.

Dunkirk, 1

Danzig, 15 cks

Ghent, 1 1 cs.

Hamburg, 59 15

Rouen, 9

Rotterdam, 1 pk. 9 1 8 dms.

Stavanger, 6

Stettin, 51

Pitch—

Antwerp, 102 t.

Plumbago—

Archangel, 1 ck.

Size—

Ghent, 10 cks.

Tallow—

Bombay, 72 cks.

Gothenburg, 5

Tar—

Bremen, 3 cks.

Hamburg, 22

Stockholm, 10

Varnish—

Antwerp, 1 dm.

Amsterdam, 6 cks.

Bergen, 2 cs.

Ghent, 2 2 dms. 1 ck.

Gothenburg, 1

Zinc Chloride—

Harlingen, 40 cks.

GLASGOW.

Week ending August 31st.

Alkali—

Hamburg, 11 c.

Ammonium Sulphate—

Hamburg, 20 t.

Valencia, 103 1 1/4 c.

Nantes, 116 8 1/4

Bleaching Powder—

Montreal, 58 t.

Bombay, 4 9 c.

Boric Acid—

Lisbon, 1 t. 7 1/4 c.

Rouen, 19 1/2

Borax—

Hamburg, 6 cks.

Montreal, 82

Lisbon, 15 1/4 c.

Montreal, 2 t. 11 1/4

Coal Products—

Creosote Oil

Danzig, 250 brls.

Pitch

Montreal, 40

St. John's, 30

Hamburg, 2 bgs.

Montreal, 50 t. 17 1/2 c.

Calcutta, 51

Tar

Hamburg, 42 cks.

Danzig, 862 brls.

Tar Oil

Danzig, 50 brls.

Copper Sulphate—

Calcutta, 7 t. 19 c.

Dyestuffs—

Extracts

Montreal, 3 t. 8 1/4 c.

Logwood

Lisbon, 25 t.

Shumac Extract

Valencia, 5 t. 13 c.

Farina—

Antwerp, 9 t. 16 1/4 c.

Glucose—

Cape Colony, 2 t. 6 1/4 c.

Lead Acetate—

Montreal, 3 t. 15 c.

Bombay, 7 6 1/4

Linseed Oil—

Colombo, 1 t. 3 c.

Mauritius, 16 1/4

Litharge—

Montreal, 8 t. 18 1/2 c.

Bombay, 2 9 1/2

Manganese—

Antwerp, 11 t. 9 1/4 c.

Manure—

Valencia, 22 t. 16 1/2 c.

Nitrate of Lead—

Montreal, 5 t. 8 1/2 c.

Paint—

Calcutta, 5 t. 14 c.

New York, 1 2 1/2

Mauritius, 12 17 1/4

Painters' Colours—

Cape Colony, 100

Calcutta, 124. 18s.

Paraffin Wax—

Cape Colony, 470

Hamburg, 166 cs.

Nantes, 1 t. 3 1/4 c.

Lisbon, 10 16 1/2

Potassium Bichromate—

New York, 20 t. 17 1/4 c.

Valencia, 34 7 1/2

Lisbon, 2 2 1/4

Rouen, 29 9

Antwerp, 20 4

Rotterdam, 18 cks. 280

Bombay, 4 7

Salt—

Mauritius, 246 t. 18 1/2 c.

Soap—

St. John's, 2 t.

Soda Ash—

Halifax, 37 t. 1 1/4 c.

Sodium Bichromate—

Valencia, 18 t. 19 1/4 c.

Antwerp, 8 13 1/4

Bombay, 2 6 1/2

Sodium Nitrate—

Madras, 10 t. 14 1/4 c.

Sulphuric Acid—

Madras, 5 t. 6 c.

Superphosphate—

Mauritius, 50 t.

Tallow—

Rotterdam, 5 t. 10 c.

Tin Crystals—

Lisbon, 1

White Lead—

Cape Colony, 1 t. 17 c.

TYNE.

Week ending August 26th.

Alkali—

Genoa, 12 t. 2 c.

Riga, 28 19

Antwerp, 6 5

Christiania, 2 14

Rotterdam, 4 14

Ammonia Alkali—

Aalborg, 10 t.

Barcelona, 14 15 c.

Ammonium Sulphate—

Antwerp, 15 t.

Hamburg, 25

Antimony—

Abo, 10 c.

Rotterdam, 2 t. 13

Copenhagen, 1

Arsenic—

Genoa, 2 t. 3 c.

Gothenburg, 18

Barium Bin oxide—

New York, 1 t.

Dunkirk, 12 5 c.

Barium Carbonate—

St. Petersburg, 12 t. 4 c.

New York, 121 12

Barium Hydrate—

Dunkirk, 10 c.

Blanc Fixe—

New York, 10 t. 8 c.

Bleaching Powder—

St. Petersburg, 135 t. 17 c.

Genoa, 6 9

Montreal, 50 5

New York, 198 11

Antwerp, 39 1

Hamburg, 33 2

Moss, 30 1

Helsingfors, 27 16

Abo, 6 18

Rotterdam, 42 10

Libau, 11

Calcined Magnesia—

Genoa, 392 lbs.

Caustic Soda—

St. Petersburg, 14 t. 10 c.

Riga, 2

Montreal, 45 13

New York, 29

Antwerp, 14 15

Hamburg, 22 6

Christiania, 10 3

Helsingfors, 18 4

Abo, 12

Copenhagen, 2 18

Libau, 4 18

Stavanger, 4 18

Magnesia—

Antwerp, 1 c.

Hamburg, 9

Barcelona, 17 t. 14

Manure—

Genoa, 100 t. 1 c.

Paint—

Rotterdam, 1 t. 7 c.

Phosphorus—

Barcelona, 8 c.

Soda—

Genoa, 10 t. 1 c.

New York, 264 16

Antwerp, 16 7

Christiania,

PRICES CURRENT.

WEDNESDAY, SEPTEMBER 6th, 1893.

PREPARED BY MESSRS. HIGGINBOTTOM AND CO., 116, PORTLAND STREET, MANCHESTER.

The values stated are F.O.R. at maker's works, or at usual ports of shipment in U.K. The price in different localities may vary.

Acids:—

	£	s.	d.
Acetic, 25 % and 40 %	per cwt.	7/-	& 10/6
„ Glacial	„	50/-	
Arsenic S.G., 2000	„	0 14	6
Fluoric	per lb.	0 0	3 3/4
Muriatic (Tower Salts), 30° Tw.	per bottle	0 0	10
„ (Cylinder), 30° Tw.	„	0 3	0
Nitric 80° Tw.	per lb.	0 0	1 3/4
Nitrous	„	0 0	1 3/4
Oxalic	nett	„	0 0 3
Phosphoric, 1750°	„	0 1	2 1/2
Picric	„	0 1	0
Sulphuric (fuming 50 %)	per ton	15	10 0
„ (monohydrate)	„	5	10 0
„ (Pyrites, 168°)	„	3	0 0
„ „ 150°	„	1	5 0
„ (free from arsenic, 145°)	„	1	6 0
Sulphurous (solution) S.G. 1025	„	3	0 0
Tannic (pure)	per lb.	0 0	1 2
Tartaric	„	0 0	11 1/2
Arsenic, white powdered	nett	per ton	13 15 0
Alum (loose lump)	„	5	2 6
Alumina Sulphate (pure)	„	5	0 0
Aluminoferrous	„	2	10 0
Aluminium	per lb.	0 4	0
Ammonia, Anhydrous	„	0 1	2
„ 880=28°	per lb.	0 0	3
„ =24°	„	0 0	2 1/4
„ Carbonate	nett	„	0 0 3 3/4
„ Muriate	per ton	23	10 0
„ (sal-ammoniac) 1st & 2nd	per cwt.	37/-	& 35/-
„ Nitrate	per ton	42	0 0
„ Phosphate	per lb.	0 0	10 1/2
„ Sulphate (grey) London	per ton	14	17 6
„ (grey) Hull	„	14	17 6
Aniline Oil (pure)	per lb.	0 0	5 1/2
Aniline Salt	„	0 0	5 1/4
Antimony	per ton	45	10 0
„ (tartar emetic)	per lb.	0 0	1 0
„ (golden sulphide)	„	0 0	10
Barium Chloride	per ton	7	10 0
„ Carbonate (native)	„	3	10 0
„ Sulphate (native levigated)	„	45/-	to 75/-
Bleaching Powder, 35 %	nett	„	8 10 0
„ Liquor, 7 %	„	3	10 0
Bisulphide of Carbon	„	11	15 0
Chromium Acetate (crystal)	per lb.	0 0	6
Calcium Chloride	per ton	2	5 0
China Clay (at Runcorn) in bulk	„	17/6	to 35/-

Coal Tar Products and Dyes:—

Alizarine (artificial) 20 %	net	per lb.	0 0 8
Magenta	„	„	0 3 9
Anthracene, 30 % A, f.o.b. London	per unit	per cwt.	0 1 2
Benzol, 90 % nominal	per gallon	„	0 1 5
„ 50/90	„	„	0 1 5
Carbolic Acid (crystallised 40°)	per lb.	0 0	6 1/2
„ (crude 60°)	per gallon	„	0 1 7
Creosote (ordinary)	„	„	0 0 1
„ (filtered for Lucigen light)	„	„	0 0 1 1/4
Crude Naphtha 30 % @ 120° C.	„	„	0 0 8
Grease Oils, 22° Tw.	per ton	2	5 0
Pitch, f.o.b. Liverpool or Garston	„	1	5 0
Solvent Naphtha, 90 % at 160°	per gallon	0	1 0
„ Lucigen and „ Wells Oils	„	0 0	1 1/2
Copper	per ton	42	13 9
„ Sulphate	„	15	10 0
„ Oxide (copper scales)	„	40	0 0
Glycerine (crude)	„	13	0 0
„ (distilled S.G. 1250°)	„	43	0 0
Iodine	nett, per oz.	0	0 9
Iron Sulphate (copperas)	per ton	1	12 6
„ Sulphide (antimony slag)	„	2	0 0
Lead (sheet) for cash	„	11	2 6
„ Litharge Flake (ex ship)	„	13	0 0
„ Acetate (white „)	„	25	15 0
„ „ brown „)	„	17	10 0
„ Carbonate (white lead) pure	„	20	0 0
„ Nitrate	„	20	0 0

Lime, Acetate (brown)	per ton	5	17 6
„ „ (grey)	„	10	0 0
Magnesium (ribbon and wire)	per oz.	0	2 3
„ Chloride (ex ship)	per ton	2	7 6
„ Carbonate	per cwt.	1	17 6
„ Hydrate	per ton	17	0 0
„ Sulphate (Epsom Salts)	per ton	2	19 0
Manganese, Sulphate	„	17	15 0
„ Borate	per cwt.	2	12 6
„ Ore, 70 %	per ton	4	5 0
Methylated Spirit, 61° O.F.	per gallon	0	2 0
Naphtha (Wood), Solvent	„	0	3 0
„ „ Miscible, 60° O.F.	„	0	4 0
Oils:—			
Cotton-seed	per ton	23	0 0
Linseed	„	22	15 0
Lubricating, Scotch, 890°—895°	„	7	5 0
Petroleum, Russian	per gallon	0	0 4
„ American	„	0	0 3 1/2
Potassium (metal)	per oz.	0	3 7
„ Bichromate	per lb.	0	0 4 1/2
„ Carbonate, 90% (ex ship)	per ton	16	15 0
„ Chlorate	per lb.	0	0 1 1/2
„ Cyanide, 98%	„	0	2 0
„ Hydrate (Caustic Potash) 80/85 %	per ton	21	10 0
„ „ (Caustic Potash) 75/80 %	„	20	10 0
„ „ (Caustic Potash) 70/75 %	„	20	0 0
„ Nitrate (refined)	per cwt.	1	2 6
„ Permanganate	per cwt.	3	5 0
„ Prussiate Yellow	per lb.	0	0 9
„ Sulphate, 90 % (ex ship)	per ton	9	15 0
„ Muriate, 80 % (do.)	„	8	0 0
Silver (metal)	per oz.	0	2 9 1/2
„ Nitrate	„	0	2 10
Sodium (metal)	per lb.	0	3 4
„ Carb. (refined Soda-ash) 48 %	nett	per ton	5 10 0
„ „ (Caustic Soda-ash) 48 %	„	„	4 10 0
„ „ (Carb. Soda-ash) 48 %	„	„	4 10 0
„ „ (Carb. Soda-ash) 58 %	„	„	4 10 0
„ „ (Soda Crystals)	„	„	2 17 6
„ Acetate (ex-ship)	„	„	16 0 0
„ Arseniate, 45 %	„	„	12 0 0
„ Chlorate	per lb.	0	0 8 1/2
„ Borate (Borax)	net, per ton	29	0 0
„ Bichromate	per lb.	0	0 3 1/2
„ Hydrate (77 % Caustic Soda) (f.o.b.) net pr. ton	„	11	10 0
„ „ (74 % Caustic Soda)	„	11	5 0
„ „ (70 % Caustic Soda)	„	10	5 0
„ „ (60 % Caustic Soda)	„	9	5 0
„ „ (60 % Caustic Soda, cream) (f.o.b.)	„	9	0 0
„ Bicarbonate	„	6	10 0
„ Hyposulphite	„	6	10 0
„ Manganate, 30%	„	16	0 0
„ Nitrate (95 %) ex-ship Liverpool	per cwt.	0	9 1 1/2
„ Nitrite, 98 %	per ton	29	0 0
„ Phosphate	„	15	0 0
„ Prussiate	per lb.	0	0 7
„ Silicate (glass)	per ton	5	7 6 1/2
„ „ (liquid, 100° Tw.)	„	4	5 0
„ Stannate, 40 %	per cwt.	3	0 0
„ Sulphate (Salt-cake)	per ton	1	4 0
„ „ (Glauber's Salts)	„	1	10 0
„ Sulphide	„	8	10 0
„ Sulphite	„	5	15 0
Strontium Hydrate, 100%	„	8	10 0
Sulphocyanide Ammonium, 95 %	per lb.	0	0 7
„ Barium, 95 %	„	0	0 3 1/2
„ Potassium	„	0	0 7
Sulphur (Flowers)	per ton	8	0 0
„ (Roll Brimstone)	„	6	10 0
„ Brimstone: Best Quality	„	4	2 6
Superphosphate of Lime (26%)	„	2	7 6
Tallow	„	27	10 0
Tin (English Ingots)	„	85	0 0
„ Crystals	per lb.	0	0 8
Zinc (Spelter)	per ton	17	7 6
„ Chloride (solution, 96° Tw.)	„	5	15 0

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SATURDAY, SEPTEMBER 16, 1893.

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or, Twaddell.
Tar and Liquor will be pumped by the company's engines into the con-
crete alongside the company's wharf, situate at Egham, on the Thames.
Tender may be obtained from the Manager, Mr. Thomas Webb, at the
unders must be sent to the undersigned, marked "Tar and Liquor," on
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September 9, 1893.

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THE RATING OF SEWAGE WORKS.

"IT never rains but it pours"; at least, so says the proverb,
and not unfrequently it does indeed seem to be so. Those
responsible for the proper treatment of sewage seem to be,
and are likely to be fairly well occupied one way and another.
On Tuesday, as if driven to a last resource, the state of the
Ship Canal Docks at Salford was brought before Parliament,
and the counsel given by the President of the Local Govern-
ment Board resolves itself into advising the adoption of pro-
ceedings against the already heavily fustigated Ship Canal
Company, as thereby "the legal position of all parties will be
defined." But even then the same authority is of opinion
that the Salford Corporation will have to go to Parliament
for further powers to deal with the nuisance. Some of our
readers will know what this means, and so will those who are
calling out so loudly about the present state of affairs if they
are still in existence at that dim and distant futurity.

But let us for a while leave the local wants of Salford, and
turn our attention to another matter which affects all those
engaged in the purification of sewage up and down the coun-
try—we refer to the assessment of sewage works. In the
House of Lords last week three important decisions were
made by our highest and final tribunal. The three
appeals which were decided consisted of one by the London
County Council against the decision given against them in
the Court of Appeal, and one each for the Assessment Com-
mittee of the St. George's Union and the Churchwardens of
West Ham, against the decisions given in favour of the
London County Council, to the effect that their sewage
works were not liable to rates in the ordinary way, since the
works were not used, and were not capable of being used, for
profitable purposes.

It is not very encouraging to those who are already looking
askance at the costliness of treating sewage effectively to
have an additional burden added to their lot, and no doubt
the decision concerning the rating of sewage works will in
turn lead to the "rating" of the Lords temporal, in certain
quarters, despite the phenomenal signs of unwonted activity
which they have so recently displayed.

Albeit, a perusal of the lengthy and comprehensive judge-
ment of the Lord Chancellor indicates many points of the
law which it would be hard to gainsay. This is so in the
question of ratability, though his Lordship admitted that
the law was not all that could be desired; while, when it
came to the principle upon which assessment ought to be
made, and what considerations might properly be taken into
account, he recognised that much greater difficulties were
involved.

In these two latter questions, his Lordship founded his
arguments largely on the case of the *Queen v. The London
School Board*; while the views of several Lord Justices on
the question of tenancy (which views were in accord with the
premises of the London County Council, and were adopted

in the case of the Owens College v. The Overseers of Chorlton-on-Medlock) were, after mature consideration overruled by the Lord Chancellor, whose ultimate decision, in which five other Lords concurred, was that the decision against the London County Council in favour of the Churchwardens of Erith must be upheld, while the other two decisions which had previously been in favour of the County Council, could not be affirmed but must be reversed.

In other words, all three cases were made conformable, and in the opinion of this, the supernal court of jurisdiction, outfall sewers, as far as they are above ground, and pumping stations in connection therewith are ratable in the usual way under the parochial assessment legislation.

MILK OR MILK AND WATER?

AN ANALYTICAL CRUX.

ROBERT G. NORMAN, a farmer, of Hillfield Farm Dairy, Bushey, Herts., appeared at the Marylebone Police Court, London, on Saturday last, to answer two summonses taken out by Reginald Geary, who procured samples of the defendant's milk, alleged to be adulterated by the admixture of six and seven per cent. of water respectively.—Mr. A. F. Jennings, solicitor, prosecuted for the Hampstead Vestry, and Mr. Ricketts, solicitor, watched the case for the West London Dairy Company, to whom the milk was consigned.—Geary, the sanitary inspector, deposed to taking samples of the defendant's milk on its arrival at the Kilburn Railway Station on the 11th and 12th August. Mr. Stokes analysed the samples, and certified them to contain 6 and 7 per cent. of added water.—Defendant said the milk was in the same condition as taken from the cows.—Mr. Ricketts explained that his client had taken out a summons against the defendant for supplying them with milk with a deficiency of cream. That summons had yet to be heard.—The defendant, in replying to the summons, said that having heard complaints as to the quality of his milk he had himself seen the cows milked, and the milk sent away precisely in the same condition as yielded by the cows. Last Sunday he called a witness who saw the cows milked, and sent a sample to Mr. Lloyd, analyst. The last-named returned a certificate showing the milk to contain 9 per cent. of added water. Afterwards he arranged for Mr. Lloyd himself to see the cows milked and make an analysis of that milk. This was done with a result that it was certified to contain 8 per cent. of added water. Mr. Frederick J. Lloyd analytical chemist, gave evidence corroborating the defendant's statement. He saw 17 cows milked in the middle of the field. All the milk was put into a large churn, and he took a sample. The result of his analysis showed 8 per cent. of added water. Milk was supposed to have a standard composition. It fluctuated but was not known to do so more than 3 or 4 per cent. of water. But this fluctuated over the normal standard containing 8 per cent. of water. Mr. Plowden: If this milk had come to you in the ordinary course you would have certified it as containing 8 per cent. of added water. Mr. Lloyd: Yes; but having seen the cows milked it would be a mistake to call it "added" water. Mr. Plowden: Then your first certificate was incorrect?—Mr. Jennings asked the witness to explain how the analysis came to show so much water. Mr. Lloyd said he believed the only explanation to be given was the exceptionally hot and dry season this year, and the effect upon the cows. The dry season had so affected the food as to alter the composition of the milk. The poorness of the food would affect the quality of the milk and diminish the solids. It was not the dryness of the food that changed the quality of the milk, but the nutriment obtained out of the food by the cows. The quantity of water drunk by the cows was not important. He took it for granted that Mr. Stokes made his analysis on the same calculation as himself.—Mr. Plowden, in giving his decision, said the substantial question which underlay all these summonses was whether or not there had been fraud. And that must be proved by cogent evidence, for it was a serious matter for an honourable and respectable man to be convicted of such an offence. Mr. Lloyd had given a clear and straightforward explanation of the abnormal presence of water in his milk. He had no doubt that the analysis made by Mr. Lloyd was a perfectly honest one, and the result had been the same as in the previous analyses. The explanation was that the word "added" in the summons was a mistake, and that due allowance had not been made for the very hot weather and very dry season. The defendant was not responsible for the composition of the milk, but for any water which might have been added to it. He therefore dismissed the summonses.

Parliamentary Jottings.

THE WAR OFFICE AND THE MANUFACTURE OF CORDITE

ON Monday in the House of Commons, the House having referred to the cordite question. He said, in connection with the committee of Supply on the Army Estimates, Mr. Hanbury, which had been made of inventors having their brains picked. War Office, he should have to mention the names of Professor and Dewar, but he only brought them forward as illustrations of bad system. The matter was not a party one, as much of the attached itself to the late Government. He then referred to early incidents in Sir F. Abel's career. In 1865 he was War chemist, and, having experimented on certain inventions, he to patents for improving the manufacture of gun cotton, and subsequently recommended the purchase of this article, for which he drew a In 1871, when the War Office ascertained that he had taken out patents, he was called upon to resign either his patents or his post. He then and there sold his patents, which were bringing him in £ or £4,000. a year for £1,000. This did not look like a bad transaction. In 1888 the Government appointed a committee to upon certain new explosives, and on this committee were Professor Abel and Professor Dewar. The suggestions made by the committee were that not only would they have private inventors come before them, but they were to be allowed to draft a new code of morals for themselves. It was just as if a was to swear and file an affidavit that he would not be bound by the decalogue, and then, when he was charged with breaking the commandments, he produced his affidavit for his defence. Even so, he told the War Office what they were going to do, they did not private inventors who came before them. Now he wished to know the War Office ever sanction that strange proceeding? Professor in a letter to him admitted that the War Office had made no communication on the matter.

Admiral Field: They informed the Director of Artillery.

Mr. Hanbury, continuing, said though it appeared Professor would have nothing to do with it, Professors Abel and Dewar to foreign patents as private individuals, and they then became the of the samples of powder to be used with the magazine rifle. A the samples sent in was one by Mr. Nobel, and he now deliberately charged these men with having infringed his patent. Mr. Maxwell sent in a sample, but his explosive was rejected, because the committee told him that her Majesty's Government would not accept smokeless powder which had for its base nitro-glycerine. Six months after the committee was appointed they took out patents of their one of which was for cordite powder, which had as much as 70 per cent. of nitro-glycerine in it. It had been stated by Sir F. Abel that it had been taken out in Germany, France, Belgium, Italy, the United States, Austria-Hungary, and Switzerland during 1889, by taking out these foreign patents a gross injustice had been done to the War Office, to the inventors, and to the public, and not only inventors been induced to enter into a sham contest before international parties, but four years of valuable time had been wasted upon it. According to Professor Anderson, cordite would be of no use to the navy, which was a nice state of things in connection with an expenditure that had already cost the country over £200,000. There were very remarkable facts behind the case, which could only be brought out when sworn to in a court of law. But he heard that promise after compromise was being offered to Mr. Nobel, the Committee could realise what the influences at work must be, for were men connected with the War Office who were only too anxious that this evidence should not be given in open court on oath.

Mr. Campbell-Bannerman said it would not be a vindictive angry suit, but one prosecuted by both parties in order to ascertain exact truth. The hon. member might rest assured there would be no compromise in the matter.

Mr. Cochrane said he considered Mr. Nobel had been exceedingly badly treated, because no sooner had the War Office obtained his patent than they set to work to make cordite, which was very different from Mr. Nobel's invention. After succeeding in getting the patent the War Office proceeded to advertise for men for the purpose of entering against a private firm. There were no other works besides Mr. Nobel's from which specially skilled workmen in nitro-glycerine could be obtained, and the result of the advertisement was that from five of the most skilled men in Mr. Nobel's works were induced to leave his service and enter that of the Government.

Admiral Field warmly defended Sir F. Abel and Professor Dewar. Mr. Campbell-Bannerman at great length dealt with the speeches of the foregoing speakers. He said he had no personal responsibility in any of the events under discussion. He protested against the word "scandal" being applied before any scandal had been proved. The hon. member opposite had said these gentlemen had been men's brains. Whose brains? With regard to Mr. Nobel's

acknowledged that he ought to receive the greatest consideration from the Government. No doubt they owed much to him for his idea of the powder. He alleged that the manufacture of cordite infringed his patent, but that the legal advisers of the Government, and the question was to be settled by a friendly suit. He alleged that because the Government had no hostility to Mr. Nobel, and that Mr. Nobel had no hostility to the Government. If Mr. Nobel made good his assertion at law the Government would be bound to give him compensation, and there was no desire to compromise the Government. He had not entered into the details of the dates and figures, but the main question he found that these eminent gentlemen were justified in inventing a powder for the assistance of the Government; secondly, that they did not pick the brains of anyone; thirdly, that where the idea or a general conception of the powder was brought home to Mr. Nobel he would be treated with justice; and, lastly, that in taking out the patents they were acting in accordance with the authorised rule of the Government departments to protect the public interests, and not themselves. In all these things, he asked the Committee with confidence, where was the fault in the assertion of a "cordite scandal."

Mr. Hanbury said he regretted being unable to go into the question of the composition and qualifications of cordite, but he might say it was found to be practically unalterable in stability, except at high temperatures to which it need never be exposed. With regard to the secret which was kept, that was the one which dealt with the fact that cordite was made, and the reason for that secret was that the Government was sorry to say, one of the War Office officials who knew the secrets of the Explosives Committee was trying to sell the secret to an outside firm with the intention of patenting them against the Government. When the hon. gentleman said the secret was kept so secret that there was no doubt because the order to keep it secret had been given by the official who gave it.

Mr. Hanbury said he still thought the main charge he had made had not been met. It had not been denied that Sir F. Abel and Professor Abel had taken out foreign patents and made money out of them; but he complained that while the Secretary for War was carefully keeping the secret in England these gentlemen disclosed the secret to no less than nine foreign Powers.

Mr. Nolan said he would have liked some information on the subject of cordite. As to the question under discussion, he, after the fact that had been made by the War Secretary and his predecessor, Sir F. Abel had come out of the debate very fairly. It appeared that if wrong was done it was done by the War Office. The fact that he had evidently taken advantage of inventors. To his mind, the required examination in a court of law, in order that the real facts might be ascertained.

Mr. Hanbury said he had a very lengthy discussion of over three and a half hours' duration, and the motion of Mr. Hanbury to reduce the estimate £500. was carried without a division.

THE STATE OF THE SHIP CANAL DOCKS.

House of Commons on Tuesday, Mr. Knowles asked the question of the Local Government Board whether his attention had been drawn to the fact that the nuisance arising from the Manchester Ship Canal had become dangerous to the health of the inhabitants of the borough of Salford and the neighbourhood? And whether, if so, he would direct a Government inquiry to ascertain the best means of dealing with the subject.

Mr. Hanbury replied: The hon. member asks me whether the attention of the Local Government Board has been drawn to the fact that the nuisance arising from the Manchester Ship Canal has become dangerous to the health of the inhabitants of the borough of Salford and the neighbourhood. This is a very difficult question for me to answer, because the Corporation of Salford are in a most perplexing and difficult position. They have on the one hand the local authorities on the banks of the river, who have polluted that river with their sewage. On the other hand, they have the Manchester Ship Canal Company, which occupies 114 acres of Salford, and that 114 acres now contains one of the most immense masses of population on the banks of the river. My attention has been called to the fact, and I am satisfied that it is most injurious to the health of Salford. My suggestion to the Local Government Board would be that they should take legal advice as to the position of the Manchester Ship Canal Company, which is entitled to create a nuisance in the midst of that neighbourhood. If proceedings were taken against the Ship Canal Company the legal position of all parties would be altered, but whatever the result of such proceedings might be, it is extremely probable that the Corporation of Salford will be enabled to obtain further powers in order that they may deal with the nuisance. I understand that they are dissatisfied with the decision of the Mersey and Irwell Joint Committee, and I can only say that the Local Government Board is concerned we shall be able to mean ready—to offer the Corporation of Salford all the assistance in our power in order to deal with the serious state of things which confronts them owing to the state of their river in the large and dense population.

The World's Columbian Exposition.

ENGLISH INDUSTRIES AT CHICAGO.

(Specially Communicated.)

MESSRS. J. CROSSFIELD & SONS.

Amongst the Lancashire exhibits at Chicago, we have to note some particularly fine samples of silicate and caustic soda, made by Messrs. J. Crossfield & Sons, Warrington.

By kind permission of Messrs. Brunner, Mond & Co., these samples of silicate are shown with the products of this firm in a most tasteful and decorative model copy of an old Cheshire house, which quaint and interesting structure is furnished with some genuine and rare specimens of old oak.

The silicate of soda is shown in solid pieces of light blue, green, and brown colour, as well as in solution, which is absolutely clear. Messrs. J. Crossfield & Sons make a speciality of producing chemically pure articles, and claim to make the purest silicate and caustic at present in the market. It certainly will take a lot of beating.

The samples are contained in large glass jars, of Warrington manufacture, the largest cut glass vessels, we believe, ever made in this country, and with the above interesting surroundings deserve a naturally prominent notice amongst the manufacturing products exhibited in the English Section.

Silicate of Soda has, as we have indicated in our article on this subject (*C.T.J.*, No. 306), such a number of highly characteristic properties, that it seems a substance likely to take a more and more important position amongst the chemicals used in different industries for a great variety of purposes.

On this account we have given particular attention to the matter and have availed ourselves of the opportunity of publishing special articles on the use and manufacture of this substance, which we hope have helped somewhat to bring it more prominently under the notice of chemical manufacturers.

PRICE'S PATENT CANDLE COMPANY, LTD.

This company has two exhibits, the more important of which comes under group 18 of department A, and is consequently situated in the Agricultural Building. Their other exhibit is in the Manufactures Building. As one would naturally expect from the title of the firm, candles form the chief item in their exhibit. In their show case the various brands of candles are tastefully displayed, including their stearine paraffin, paraffin, sperm, and composite candles. The stearine candles are characterised by their opaque whiteness, their freedom from liability to bend and to gutter, and by the softness of their light. They are specially suitable for use in a warm atmosphere, e.g., in hot climates. The paraffin (transparent) candles give much more light in burning owing to their greater richness in carbon and hydrogen. They have this disadvantage, however, that unless their combustion is properly regulated, their very richness in light giving properties may become a source of trouble giving a red and smoky flame. The paraffin-sperm candles are composed of a mixture of paraffin and stearine, producing a happy combination of great light-giving power and slow combustion, with comparative freedom from liability to bend or gutter.

Composite candles are made of the softer fatty acids pressed out in the manufacture of stearine. The first composite candles were invented and made by Edward Price and Co., the private firm, which, when constituted a Public Company by Act of Parliament in 1847, took the title of Price's Patent Candle Company. When, on the occasion of the marriage of Her present Majesty Queen Victoria, in 1840, a general illumination of London was resolved upon, Edward Price and Co. desired to produce a candle which should far surpass the then generally used but unsightly and troublesome tallow candles. This was effected by making a mixture of tallow stearine with the hardest part of the then little-used cocoa-nut oil. The result was so satisfactory that the new "composite" candle at once came into large demand. Although the exact composition of the candle material has, since then, been often and largely altered, yet the essentials of the original candle, viz., its moderate hardness, combined with large and regular light and freedom from the need of snuffing, have not been departed from, but constitute the characteristics of these candles as made by Price's Patent Candle Company, Ltd.

The night lights and glycerine made by this firm are too well known to need mention in particular, a great variety of makes of the former and qualities of the latter being displayed. Oils occupy a prominent place among the manufactures of this firm, and are well represented. As something out of the usual run, our attention was drawn to the cloth oils, which are made in four qualities, and treated by a patent process, so that all risk of spontaneous combustion is obviated. This cloth oil

or refined oleic acid, is employed for oiling wool, replacing the more costly olive oil. Great care is taken to remove the hard fatty acids, so that the cloth oil may bear considerable cold without congealing. The consumption of this product—chiefly in Yorkshire, the West of England, and in Scotland—is considerable.

In connection with machinery oils, this company has availed itself of its unrivalled manufacturing resources, and has devoted much of the technical skill at its disposal to the preparation of a series of lubricating oils which, as well from the point of view of the practical engineer as from that of the scientific chemist, are efficient and economical in work, and absolutely free from the dangers attendant upon the use of inferior oils. In this department the company have taken care to note and to make provision for all advances which have been made in nearly every direction in the science of engineering within recent years, among which the following improvements may be named: 1st. The introduction and development of the triple expansion engine, with the necessary increase in boiler pressure and temperature which it demands. 2nd. The higher speeds now adopted for engines and all subsequent motions. 3rd. The modifications in the construction and important increase in the speed of spindles in nearly all textile factories.

It therefore seems sufficient to say that, without abandoning the principles upon which the company have already established their reputation as oil manufacturers, they fully recognise the new and important conditions imported by the modifications referred to above, and have made ample provision for the most extreme development of these in the oils which they specially prepare for modern machinery.

MESSRS. F. C. CALVERT & CO.

This firm as the pioneers of this industry are well represented at Chicago. Their name is so well-known in connection with carbolic acid that it is needless to say much about their productions, beyond indicating the particular articles to which they have given prominence in their exhibit, which is situated on the ground floor of the Manufacturers' Building, at Stand No. 285, being only two stands removed from the joint exhibit of Messrs. J. Crossfield and Sons, and Brunner, Mond, and Co.

Here carbolic acid in various degrees of purity from the best for medicinal, surgical, and pharmaceutical purposes down to the lower grades for use in manufactures and as a disinfectant. In addition, we find disinfectant powders and carbolic soaps containing guaranteed percentages of carbolic acid, toilet preparations, and sulpho-carbolates.

When we recollect that this firm now hold sixty gold and silver medals and diplomas for their productions, we need say no more, save to add that having discovered how to produce carbolic acid from coal tar on a commercial scale, to them is due not only the credit of producing it in a state of purity, but also the demonstration of its virtues in medicine and sanitation. By the development of this industry medicine has been enabled to achieve one of its greatest triumphs of the century, namely, antiseptic treatment in surgery whereby thousands of lives has been saved annually, and suffering in various diseases materially alleviated.

A SOAP TRAVELLER'S CHANCE—It would be much easier to enumerate the places where soap is not used than to specify where it is used, and the purposes which it is made to answer are many, apart from its legitimate rôle as a cleanser; yet there is a large territory, namely, Thibet, where such a thing as soap is unknown. The people of Thibet must be about the dirtiest in the world, for it is stated that not only do they never wash, but when once full growth has been attained they never take their clothes off. When the garments they wear become old others are put over them. How unfortunate it is that this country and its people are so inaccessible. If only the thin end of the wedge could be inserted, what a happy hunting ground there would be for the whole tribe of "matchless cleansers."

THE BEETROOT CROP ESTIMATES.—M. Giesecker, in the *Agricultural Rationelle* (Brussels), publishes a review of the condition of the beetroot crop in Europe. For France he gives the following estimate of the quality of the crop:—"25 per cent. good to very good; 35 per cent. medium; 40 per cent. bad to nil. The yield in the whole of France is estimated at 4,775,000 tons of beetroot for manufacture. In Holland there will be a deficiency of 5,000 to 10,000 tons as compared with 1892. Belgium, on the other hand, will have a surplus of 25 per cent. In Germany the probabilities are that there will be a yield of 1,525,000 tons of sugar. In Austria-Hungary the crop is estimated to give 900,000 tons of raw sugar. In Russia the rich harvest coincides with a large increase in the area cultivated, and the surplus yield may be set down at 200,000 tons of raw sugar. For the whole of the western countries—France, Belgium, and Holland,—says M. Giesecker, a deficiency of 50,000 tons of raw sugar may be anticipated, while the central and eastern countries—Germany, Austria, and Russia—promise to yield an excess of 600,000 tons, being a surplus for Europe of 550,000 tons of raw sugar.

THE RIBBLE JOINT COMMITTEE.

A MEETING of this Committee was held on Monday last at the Rev. R. C. Fletcher in the chair. Mr. Worsley-Taylor headed a deputation of landowners and ratepayers of the district in respect to river pollutions at Whalley. Mr. Worsley-Taylor explained that some time ago proceedings were taken against the Sanitary Authority of Clitheroe in respect of pollution at Whalley, and that something ought to be done, but objection was made to the cost of a scheme that had been prepared for dealing with the river, and which, Mr. Worsley-Taylor explained, would, even if the scheme was carried out within the estimate, cost £5,681. He calculated after adding cost of maintenance, &c., that the total charge to be borne by the Whalley ratepayers would amount to something like £410 a year, or a rate of 1s. 11½d. in the pound. The total rate, he calculated, would be brought up to 4s. 11d., or, an alternative scheme that had been suggested, to 5s. 10½d., which was an enormous rate for a purely rural district. There was no question of turing pollution whatever. The deputation quite admitted that the offence was being committed under the Act, but they ventured to say that something very much short of what had been proposed would satisfy the requirements of the locality. The Chairman admitted that the low rateable value, the small amount of sewage, and the high cost of works made the case a rather remarkable one. The deputation, while the Committee considered the position. On the reading of the deputation, the Chairman said they were not the Public Committee of the county. They had nothing to do with the question of the superior merits of filtration or any other system of sewage treatment. All that they had to do was to protect the river, and so long as that was done they were satisfied. The scheme referred to in the deputation was certainly a very expensive one, and if they possibly get another scheme at a less cost which would satisfy the Government Board, and which would keep the river free from pollution, the Committee would be satisfied. With regard to the population of Whalley, the census returns did not entirely represent the number of people who frequently made use of Whalley, and who added their sewage contributions. It was a great pleasure resort; sometimes there were thousands of people there at once. The matter was ultimately allowed to stand over, and in the meantime the representative ratepayers were to further discuss the position and consult with Mr. Naylor, the inspector.

THE CHEMIST IN THE FOUNDRY.

The characteristics of iron from different localities are not constant. This variation, moreover, is not only attributable to the iron being produced in different furnaces, but also to the particular conditions existing at the furnace at the time of making.

The impossibility of always making an iron suitable for a particular purpose and of knowing what kind of iron would run from the furnace until it was cooled and examined led to the divorce of the furnace from the foundry business, the two businesses being formerly combined. It is shown by the fact that the superintendent of the furnace is in places yet called the founder.

To correct a fault of any particular iron the particular iron must be singled out, the cause of its failure determined from lack of a particular element, and this remedied by the addition of a particular element having a relative excess or deficiency of the same element.

To experiment with the cupola mix till the cause is determined is both tedious and expensive, for, with six or more irons containing varying proportions of six elements, the number of combinations may be made before the right one is found offers a very inviting prospect for the calculation of the mathematician, but their contemplation often wears the founder. The analysis of the casting immediately locates the cause of the trouble, and the knowledge of the composition of the irons in the mix allows the offender to be singled out and points the remedy at the same time.

Heretofore the majority of founders have considered that the management of their business did not warrant the employing the services of a chemist, but an association would offer a great opportunity for mutual improvement in this direction by their having a laboratory for their special use, where there would always be the facilities for their individual work, they could always consult with a specialist on the problems which always arise, and where work of general value and interest to the trade could always be carried on and the knowledge distributed to the society. Some of the large foundries have already availed themselves of the services of a laboratory, and the results in all cases have been most satisfactory, although, for business reasons, there was naturally no great disposition among them to herald its advantages. Some of the notable advances of late, both in improvement of quality and cheapening of product, are directly traceable to this *American Manufacturer*.

FACTURERS AND RIVER POLLUTION.

LOCAL GOVERNMENT INQUIRIES.

ROYTON INQUIRY.

Mersey and Irwell Joint Committee having applied to the Government Board for permission to take proceedings against Messrs. Jowett, Waterhouse, and Co., of the Grimbyes Brewery, polluting a stream within the jurisdiction of the committee, appeared at the Royton Police Court before Arnold Taylor, H.M. Inspectors, on Tuesday, September 12th, at 10-30 give evidence why action should or should not be taken. The committee was represented by Mr. Parry, instructed by ; and Mr. Waterhouse appeared on behalf of the firm. In setting forth the case for the Joint committee, said he ask for permission, and to show cause why proceedings taken against Messrs. Jowett, Waterhouse, and Co. for an section 5 of part 3 of the Mersey and Irwell Joint Com- of 1892. He also pointed out that the present inquiry was a legal proceeding under the same Act, and was in with the provisional orders of the Local Government Board. Him to show that there was a pollution; that there were and practicable means of preventing that pollution; and, the committee had not and were not acting in a capricious did not follow that proceedings would be taken by the the Local Government Board gave its consent; but they ve that consent, so as to bring pressure on manufacturers t doing anything to prevent the pollution of the river. He led to review the case, and put in letters showing that the een visited by the Chief Inspector, that samples had been hat letters notifying the intention of the committee to take a report by Sir H. Roscoe on the effluent had been sent to ett, Waterhouse, and Co. In answer to a notice from the tee, Mr. Joseph Lord Waterhouse had appeared before the show cause why proceedings should not be taken, but he n satisfaction to the committee that anything likely to effect ent was being done. This brought the matter down to time; and he would bring witnesses to show that their inquiry was *bonâ fide*.

Inspector (Mr. R. A. Tatton) stated in cross-examination that he had sent a letter to the polluting firm in June, d visited the works on account of complaints received ckley that the water in his reservoir was being polluted nt from the Grimbyes Brewery. Since then the effluent erted from the reservoir, and now found its way from the into a small stream, along a culvert, past the reservoir and thence into the Irwell. As the pollution was a teps had been taken by his committee to prevent the con- he same. He was present on August 14th, 1893, when use appeared before his committee, who admitted to the thing was being done. By way of treatment he named ipitation and filtration or evaporation of the worst part of

Waterhouse: The committee took up the matter on account s from Mr. Buckley? Yes.—It was not contended that only polluters? No.

Tor: The only one at Royton, it would appear, though.

rry: Yes; the pollution was a serious one. He had m to move in the matter prior to their endeavouring to sion to turn the worst part of the waste into the sewers, s not being done.

quire (sub-inspector) spoke to the taking of the samples Parry, stating when and where they were taken, Mr. g out that the samples were taken in accordance with the of the Act. Continuing, witness said there was much ween the two samples.

ector: Yes; both were taken at the same point.

der, analytical chemist, give evidence upon the accuracy of l analysis made of the effluent. In reply to the Inspector he nt could be purified. How?—He would suggest separating from the good, and treating the bad in subsidence tanks, s and subsequently filtering through artificial filters.

of the polluting firm, Mr. Waterhouse said he had no ng the proceedings. He had no intention of attempting t that they did send out a polluting effluent, he would only they had asked permission of both the Oldham Corporation on Local Board to turn the worst part of their waste into t neither Authority would give them their permission, the y stating that they were spending much money in perfect- ge outfall works and the introduction of the waste from ould materially add to the difficulty of the Local Board the sewage. A letter had been sent asking on what Local Board would accept the waste into the sewers, and to come up for consideration at the next meeting of the

John Alfred Waterhouse was then called: He stated he was foreman brewer at the brewery in question, and had been in that position for seven years.

By the Inspector: The samples were *bonâ fide*. The first sample that was taken (which was the worst of the two) was the more representative one. The waste consisted of the washings of dead yeast, etc. The flow was intermittent, occurring daily for about two hours. There were no hops sent to waste in the effluent; they were taken out by means of a hop bag and thrown on the manure heap. They did not malt, so there was no pollution from wash waters connected there-with. They had spare ground for dealing with the effluent.

Mr. Waterhouse said he did not wish to deter the Local Govern- ment Board from giving their consent to proceedings being taken, as he did not think the Joint Committee would harass the firm unduly.

Mr. Parry represented to the Inspector that they desired the consent of the Local Government Board in order to be able to put pressure on those firms who were disposed to think they were doing all that could be expected of them, while the Joint Committee thought differently.

The proceedings then terminated.

The brewery was subsequently visited by the Inspector.

THE BURY INQUIRIES.

THE UNDISCOVERED EXPERT.

On Wednesday an inquiry was held by Arnold Taylor, Esq., at the Bury Police-court under the provisions of the same Acts as detailed above in the Royton inquiry. Two firms attended to answer to the charges of pollution under Section 5 of the Mersey and Irwell Joint Committees Act, 1892. The case of Mr. H. Whitehead was taken first. Mr. Parry, barrister, appeared for the Mersey and Irwell Joint Committee, and Mr. W. D. Wright (Under-Sheriff) for Mr. Whitehead.

Prior to the opening of the case, a proposal was made in Court by Mr. Wright that the Local Government Board should give consent to proceedings being taken, but not for two months, so that in the mean- time Mr. Whitehead would have time to do what was necessary.

Mr. Parry, in opening the case, said Mr. Henry Whitehead was a bleacher, finisher, printer, and dyer, at the Lower Croft bleach and dye works, Elton, near Bury. Notice to cease polluting the river was sent him in October, 1892. Mr. Parry then proceeded to set forth the premises of the case for the Joint Committee, which were identical with those instanced at the Royton Inquiry.

The Chief Inspector (Mr. R. A. Tatton, M.I.C.E.) was next exam- ined as chief witness for the Joint Committee, and testified to the pollu- tion of the Black Brook, which runs into the Irwell. He was not aware that any attempt to treat the waste from the works had been made. Samples had been taken and analysed. He then outlined the treatment he would suggest.—In cross-examination, he stated that there were works in existence successfully treating their manufacturing effluents, nearly all of them having begun to move in the matter since the establishment of the Joint Committee.

By Mr. Wright: He had seen Mr. Whitehead at the works, and learnt that he was approaching the Bury Corporation in the matter of putting down a drain. He did say he would report the matter to his Committee, as Mr. Whitehead was unable to attend before them as invited; he duly made such verbal report on the occasion of the meeting of the Joint Committee when the resolution to take proceedings was passed.

A plan explaining the locality of the works was put in by Mr. Wright, and in reply to him Mr. Tatton said the works were situated at the bottom of two hills, the effluent from the works being conveyed by a culvert, into which much surface water and refuse ran, in addition to the waste from the works. It was proposed to put a drain down the culvert for the waste of the works, and for the cost to be divided. The culvert ran to a settling tank, and if the present culvert was used Mr. Whitehead would have to treat the water turned in by the Corporation as well as his own waste.

Would it be right for Mr. Whitehead to have to do this? I cannot say.—Well, would it be wise?—That matter had nothing to do with him; it was a question between Mr. Whitehead and the Corporation alone.—But you see we cannot move in the matter without the Corpora- tion.

The Inspector: You could put down a separate culvert.

Mr. Wright, continuing, asked witness if he had seen the settling tank in question? Yes.—What was the size of it? It was a large tank.—Was it adequately large? It was impossible to say without knowing the details of the quantity of waste to be treated.—Do you know of any larger tanks being used? Not used, but larger ones were being constructed at other works. The volume of the effluent from the works in question was enormous.—Might not the cost of separating the good from the bad water in an old works be a very costly and difficult operation? It had been done; it might, doubtless, prove difficult.—And an expense, a serious expense? He could not say, the question was not one of expense.

The Inspector: It would naturally take a substantial expense to remedy a serious evil.

Had not a tank for dealing, if necessary, with all the waste been made? Yes; it had been made two years, but not used.—Are there other firms using the means you name? Yes.—How many? Five or six.—And are they dyers, &c.? Yes; dyers, calico printers, or bleachers.

Mr. Parry then called Mr. Johnstone (sub-inspector), who spoke to taking certain samples, which were produced in Court, showing the water entering the works and leaving it; also the surface water which the Bury Corporation ran into the culvert. Several questions as to the taking of the samples were put by Mr. Wright and answered to his satisfaction.

Mr. Frank Scudder, analytical chemist, was next called, and testified to the analyses. He said they indicated serious pollution. The volatile solids were very high.

Mr. Wright then called Mr. Henry Whitehead, who said he had made a settling tank, but it had only been used two or three days as he found it was getting filled with refuse from the roads which was carried into the culvert and thence to the tank by the surface water.

By the inspector: The culvert was covered in for about 250 yards, and open for another 120 yards when it reached the tank. It ran through his own property, but had always been used by the Corporation.

Mr. Wright, resuming, asked: When were you first visited in 1892? I don't know, there have been so many visits by Inspectors from Salford and the Joint Committee that he was completely confused. In regard to the proposal on foot between himself and the Bury Corporation, he had learnt that the decision of the Paving and Sewer Committee to find the pipes while he found labour had been confirmed, and he awaited a formal intimation from the Town Clerk. It would, he thought, cost quite £3,000, to make drains to separate the good from the bad water.—Cross-examined by Mr. Parry, witness was asked if after receiving notice, to stop polluting the river he had consulted any expert? No, I did not know of any capable expert.

Did you consult any practical man to give an estimate of the cost of treating the waste? No, I made my own estimate. He wanted to find a man who could tell him what to do and to put him right.—Mr. Parry: You do not seem to have looked far for him. Witness: He had consulted with practical men who had works.—Did you go to see any of the works which Mr. Tatton named as successfully treating their waste water? No, he heard that at one of those mentioned it was not a success.—That's only what you heard. Suppose the Corporation did not meet the present proposal—he did not say they would not—but supposing they did not, would you pay for the pipes yourself? No, I do not think it would be fair to me.—Why? I had been hoping that in time Sir H. Roscoe would give manufacturers some advice in the matter.—Did you call in Sir H. Roscoe to give you that advice? No, I was under the impression that he was specially retained for the Joint Committee. I have every reason to believe the Corporation will meet me.

By Mr. Wright: You are a member of several trade associations? Yes, the Dyers' and Bleachers' Associations.—And the question of pollution had been discussed by these associations? Yes, for years.—And you did not consult an expert, as having been in the business all your life you consider manufacturers are better fitted to deal with these matters than experts? Much more so. I do not think I could get a professional man to grasp all the difficulties of outlets from dye becks, &c., in such a work.

By the Inspector: The tank would hold two million gallons? He had no idea what the volume of this effluent per 24 hours was. The late borough engineer had advised him that the tank would be adequate for his waste.

Upon consulting the Act, Mr. Parry said he found the original proposal, moved by Mr. Wright, could not stand, as the Local Government Board must either give or withhold their consent.

After some discussion between the Inspector, Mr. Parry, and Mr. Wright, it was decided that the Inspector would represent to the Local Government Board that their consent should not be given (if they gave it) till almost the expiration of the three months, one of which had already expired. The Inspector afterwards visited the works.

The second case was that of Messrs. Rumney and Co., printers, of Stubbins, Ramsbottom, on whose behalf Mr. Young, managing partner, appeared. Mr. Parry stated the case, and called witnesses as before, to prove the pollution, taking of samples, and possibility of treating the effluent. A statement was made by Mr. Young to the effect that they had been tossed about by the Ramsbottom Local board, who now decided to take manufacturers' waste under the conditions of the Rivers Pollution Act of 1876. They were willing to co-operate with the Local Board, who were waiting for the sanction of the Local Government Board. They had no land to erect tanks or filters, the works being hemmed in. A number of houses and shops drained into the goyt which carried the waste water from the works.

Mr. Parry asked if there was not some land on the other side of the goyt which could be obtained for putting down settling tanks.—Mr. Young said there was some private land belonging to Mrs. Rumney. *She had no interest in the firm.*

Mr. Parry then pressed for the consent of the Local Gov Board.

The Inspector said he would place the evidence before them who would report in due course.

The works were afterwards visited by the Inspector.

UTILISING GARBAGE.

IN a paper dealing with the most economical method of treating refuse, read recently before the Chemical Section of the Franklin Institute, Dr. Bruno Terne calls attention to the desirability of putting to some use the waste of our large cities. His experience in this matter, both at Chicago and Philadelphia has been convincing, seeing that he has been in the habit of dealing daily, on an average, with some 250 tons of waste from the latter city.

As regards the cremation system, he says:—Unquestionably the most complete system for destroying all organic substances is the most complete system for destroying all organic substances and doubtless to the extreme sanitarian the only method that has been adopted. But what about the economical results? The daily operation of the furnace requires labour and fuel, the product of which is a small quantity of ashes and worthless at that. Four or five per cent. of ashes is all that remains of the garbage when incinerated.

An analysis of these ashes, as obtained by the American Industrial Company, showed them to contain total phosphoric acid 15.32 per cent. (= 33.88 per cent. phosphate of lime), potash 0.25 per cent., in water.

Criticising this analysis the author goes on to say:—I was anxious to find so little potash, but the intense heat in the furnace has driven a part of the alkalis as chloride vapours, otherwise the analysis should show at least four times as much.

This ash, even with fifteen per cent. phosphoric acid, has a considerable market value because natural phosphates in bags, and ground bone finest powder, can be laid down at our doors at £1. per ton.

The phosphoric acid of such low percentage is valueless for agricultural purposes because it will only yield practically a powder containing five to six per cent. of available phosphoric acid. The product cannot be used for mixing fertilizers and it cannot be sold on the market when acid rocks containing thirteen to fourteen per cent. available phosphoric acid are offered as low as £2. to £2. 10s.

The products of the cremating process, therefore, will never be a commercial article. The question then arises, Can the same requirements be reached in another way? Without doubt they can, and at the same time, the valuable constituents of the refuse destroyed in the furnace can be saved.

The city garbage, embracing all the refuse from the town, changes its qualities considerably with the season. In winter we are in the vegetable period and the results of my experiments represent about the lowest results obtainable.

The experiments I have made are not laboratory experiments, but practical manufacturing experiments, handling at a time from twelve tons of material. I have been in the fortunate situation of being able to utilize, at intervals, apparatus designed for other purposes, but very well adapted for the purpose of these experiments.

There is no secrecy about the principle of rationally utilizing garbage, and there are no new processes involved for which enormous patent fees will have to be paid.

The process is divided in two main operations:—

- (1) The separation of the grease by extraction.
- (2) The drying of the remainder to form a saleable product.

The results I have obtained yielded me about seventeen per cent. on an average, of dry product from garbage tankage. The tankage is a very excellent fertilizing material. Its composition is as follows:

	Per cent.
Moisture.....	4.4
Organic matter	73.3
(including 4.3 per cent. NH ₃)	
Mineral matter	22.2
	100.0

On a smaller scale than that which could be profitably carried out in Philadelphia, garbage is utilized successfully in this way in other places. I have received from Detroit samples of fertilizer made from garbage with as high as 5.37 per cent. ammonia, 6.08 per cent. phosphoric acid; and, at another time, 3.76 per cent. ammonia, 3.36 per cent. phosphoric acid.

A specimen from Providence contained 3.55 ammonia, 3.15 phosphoric acid; from other places, 3.86 ammonia, 3.51 phosphoric acid.

A fair average analysis, showing the minimum and maximum what we may expect, is as follows:—

	Per cent.	Per cent.
monia	3'50	4'50
phoric acid	3'00	6'00
(corresponding to phosphate of lime, 6'54, 13'28.)		
er soluble potash.....	0'25	0'50

to say that at the present market price of ammonia, these will realise £2. per ton. I leave phosphoric acid and potash calculation to give you the practical valuation. Material is a most excellent fertilizer, not only chemically, but ally, and its usefulness in the manufacture of fertilizers is nit.

another feature connected with this waste, viz.: the of the grease contained in garbage.

bage, at a low estimate, will yield three per cent. of black ven for this black grease there exists a limited market at low lubricating purposes (for car wheels). This black grease ains much free fatty acid, but it is by no means free from it. samples containing over six per cent.

gular production should rise to such quantities as the garbage ole city will permit of producing, other uses must be found oduct, which, in the crude state, has but a limited field of

There are ways and means known to the chemist, however, this raw product, and the refined material made from it y find a market in competition with other greases; I myself rocess which has given already satisfactory results.

ethod employed by me in this work is absolutely practical in quick action, cheapness, and positive results.

ase stock so produced is very oily at 60° F. It yields about seventy-five per cent. of this very fine oil, which will find a

This oil will prove a puzzle to the best expert in the oils, for it contains traces of all oils and greases which enter a. It will challenge the reliability of all the colour tests, numbers, etc., but in spite of its evasion of the methods of and Benedikt, it will find an excellent market.

ned grease is a very finesoapstock, and I have in my possession soap made solely from this grease.

ional mode of disposing of the city garbage is as simple as an be:—First, to gain all the grease, we must apply practical f extraction by known solvents; then, to save the fertilizer we must employ the most rapid and economical methods to eighty per cent. of water contained in the material.

mounts are easily handled; the difficulty arises when such quantities stare one in the face. It is not, therefore, so much cal processes employed, as the proper disposition of the plant, st be well understood.

ck delivered at the works must disappear in the process, on , and must never be permitted to rest for a moment until, -eight hours, it is ready to be filled into bags.

xperience of many years in handling materials of this kind ous quantities, and as the chemical manager of the orks of its kind, permits me to speak advisedly on this nd I am prepared to stake my reputation as a technical a the assertion that the utilization of our city garbage can be as a financially successful operation for the saving of the materials contained therein.

s no doubt in my mind that this question of the disposal of ge can be solved by careful consideration of all points, by business men, to the advantage of the city authorities and the s for this work, to the fullest satisfaction of the health s, and to the benefit of the farmer.

Correspondence.

not hold ourselves responsible for the opinions expressed by our correspondents.

ANSWERS TO CORRESPONDENTS.

Works quite inland.

—Thanks for your letter, etc. We are giving the matter our attention. and it answered your purpose.

understand the position now and thank you for your favourable my.

will be held over pending your supplementary information.

CARBORUNDUM.

THIS is the name given to a new substance of great durability and stability discovered by E. G. Acheson, and now being made by the Carborundum Company, U.S.A. It is made by passing an electric current of some forty ampères, with a potential of about fifty volts through a mixture composed of forty per cent. of carbon and sand respectively, and twenty per cent. of common salt. This mixture is contained in a furnace made of refractory bricks, and fitted with adjustable carbon electrodes. The whole mass becomes fused, carbon mon-oxide being given off and carborundum results. It may be mentioned in passing that the carbon used in the mixture is carbon obtained from the coke left in the distillation of petroleum. Chemically considered the compound is virtually a crystallised carbide of silicon (Si C). The permanency of this compound is shown by the fact that the clean and pure powder heated for an hour at a bright red heat in a current of oxygen only lost 0'41 per cent. The crude product is purified from much of the iron oxide and alumina which it contains, by treating it first with hydrochloric acid then with dilute caustic soda and water, then the powder is put in a combustion tube, heated to dark redness and a current of oxygen passed over it for about one hour. All free carbon and perhaps a little of the combined carbon is burned off and a powder obtained, which contains now only silica, acid, traces of magnesia, alumina and iron, besides the carbide of silicon. By treating the powder with hydrofluoric acid, the carbide of silicon is obtained nearly pure. One of many samples cleaned in this way, gave, on analysis by Dr. Mulhauser, the following results:—

	Per cent.
Si	69'10
C	30'20
Al ₂ O ₃ and Fe ₂ O ₃	0'49
CaO.....	0'15

So that practically this compound may be considered as being composed of 70 per cent. of silicon and 30 per cent. of carbon.

The crystals are not dissolved either by hydrofluoric acid or by any other acid; they are slightly attacked by dilute caustic and carbonated alkalis; and they are decomposed by caustic or carbonate of soda by fusion. The carbon is separated and silicon is transformed into silicic acid, the whole mass becomes black, then after some time the carbon burns off.

When reduced to a very fine powder and floated in water, carborundum does not settle, even after a period of months. Of its uses we shall have occasion to speak later on.

Trade Notes.

A TOWN IN DARKNESS.—Owing to a disagreement between the Corporation of New Romney and the Gas Company as to the price of gas, the company removed all the public lamps, and the town was in utter darkness. An attempt was made to light the streets with candles, but it proved an utter failure. Tenders have been received by the Corporation for an oil illumination.

MANCHESTER AND ITS SMOKE.—The Sanitary Committee of the Manchester Corporation in their annual report to the City Council state that during the past year four smoke inspectors have taken 2,000 timed observations of the chimneys of various works in the city. The owners of 2,244 works were cautioned against a continuance of the smoke nuisance, and 135 cases were taken before the magistrates.

PERIODIDES OF PHENOL.—These bodies are prepared by substituting the hydroxylic hydrogen in phenols, and phenol carboxylic acids with iodine. According to a process which is patented, this is accomplished by adding an alkaline solution of the phenolic body to a solution of an alkaline iodide, which is undergoing electrolysis. In addition to phenol, cresol, resorcinol, beta-naphthol, salicylic and cresotinic acids, and several other compounds yield similar iodides by this method. From one to four molecular proportions of the iodide are used in accordance with the amount the phenol will take up.

LAWES' CHEMICAL MANURE CO.—The report presented at the annual meeting of this company, recently held under the presidency of Mr. W. Colchester, stated that the profits were £26,362, out of which a dividend of 7 per cent. was recommended on the preference and 10 per cent. on the ordinary shares, while it was proposed to write off £5,000. from land, plant, leases, and goodwill account, to transfer £2,000. to the reserve account for bad and doubtful debts, and £1,000. to the reserve fund, leaving £6,772. to be carried forward. The Chairman, in moving the adoption of the report, said the year had been a rather hard one, but they had been able to come out very successfully, there having been and increase in their sales and also in their profits. The motion was carried unanimously.

SINGULAR SINKING OF A BARGE.—A sad accident, resulting in the loss of two lives, occurred on the river Weaver at Winnington, near Northwich, on Saturday last. A canal boat was lying off the quay at Messrs. Brunner Mond and Company's chemical works, heavily laden with salt and soda crystals, ready to be transferred by means of the Anderton lift to the Trent and Mersey Canal. The boat was in charge of Thomas Theobald, whose wife and four children were also on board. Theobald was walking along one side of the vessel when it suddenly lurched and almost immediately sank. With the greatest possible difficulty the captain succeeded in saving his wife and two of the children, all of whom were landed in a very exhausted condition. Unfortunately, two other children were in the cabin: one was a boy aged six and the other an infant who was tied in a chair. Both were drowned before even an attempt could be made to rescue them. In the course of the afternoon the boat was raised, and the bodies of the two children recovered.

BURNED TO DEATH BY VITRIOL.—On Friday last week a carter in the employ of Messrs. E. P. Potter and Co., Limited, chemical manufacturers, Little Lever, was seen by a youth at the bottom of Smithy Brow, Agecroft, lying on the ground. On going to him the youth found a carboy of vitriol, which had fallen off the lorry, lying on the man's body. His clothes were saturated with vitriol, and he appeared to be unconscious. However, in a few minutes he regained consciousness, and asked for a drink of water. The lad sent for some water, and afterwards left the man in charge of another man. At the Coroner's inquest further evidence was given to the effect that deceased was very badly burned by the vitriol about the face and upper part of the body, and he was conveyed to the Salford Royal Hospital. He was there examined, and it was found that, in addition to the burns, his thigh was fractured. He died at the hospital in about an hour after his admission. The youth who found the deceased stated that he saw two horses yoked to a lorry on the footpath. The horses were trotting, as if the lorry had overpowered the shaft horse. The chain horse got loose and the shaft horse and lorry came down the brow at a good pace. The lorry was laden with vitriol, and three bottles fell into the road, and the contents were scattered about. The shaft horse was so severely injured by the vitriol that it died the next morning. The jury returned an open verdict, there being no direct evidence to show how the deceased sustained his injuries.

FIRE AT MESSRS. PILKINGTON BROS.—An alarming fire broke out late on Saturday night, the 9th inst., at the glass works of Messrs. Pilkington Brothers, St. Helens, under circumstances which suggest that it was the work of incendiary miners. About ten minutes to 11 on Saturday night, a boy named Shepherd, son of Messrs. Todd's caretaker, whose premises adjoin Pilkington's, went into the yard for some water, but returned immediately very frightened, telling his mother that a man had just rushed out of the yard and that he heard cracking in the direction of Pilkington's straw yard. The straw rapidly flared up, and in a few minutes, aided by a slight breeze, the fire spread to the other stacks. Firemen appeared on the scene with a steamer and hose reel, and, the narrow approaches being completely blocked, the fire-engine was drawn along the adjoining canal bank, which was densely crowded with rowdies. When the suction pipe of the engine was thrown into the middle of the canal the rowdies repeatedly pulled it to the side, where it got choked with mud, and the engine remained powerless for a considerable time. Some of the police, too, were assailed with stones and pushed into the water. The flames spread over the whole of the storage buildings, in which Messrs. Pilkington had stored some 600 tons of straw, and the crowd of miners set up cheer after cheer as the roof of the burning building fell in. This circumstance as well as the obstruction noted, and what the boy Shepherd saw tend to the conclusion that the fire was the work of incendiaries. Messrs. Pilkington Brothers are the proprietors of several of the largest collieries in the district and their men are now on strike. The fire was still burning on Monday. The buildings which have been destroyed, were valued at £500, and the straw stored in them was said to be worth £1,000.

Market Reports.

TAR AND AMMONIA PRODUCTS.

The benzol market continues quiet and both 90's and 50's may be said to vary from 1s. 5d. to 1s. 5½d., though it is difficult for anyone who knows the market to regard these as serious prices, as no doubt supplies have been secured at a trifle less than this, though the foregoing is the normal syndicate quotation. Anthracene continues in the even tenour of its way, in fact the same may be said of most tar products.

The sulphate of ammonia market is still firm and as it is but the

middle of the month every effort is being made to induce both buyers and sellers to believe the contrary. Of course sulphate is at a high price compared with nitrate, having followed the laws of supply and demand, and there are many just now only too anxious to see it drop a pound or two. Buyers are offering £14. 17s. 6d. London, £14. 15s. Hull and Leith, and £14. 13s. 9d. on Beckton terms. The future of the market remains entirely in the producers' hands, and all depends upon their action; if they believe there is no demand for sulphate, and sell accordingly, then the market will relapse into its former lethargic state, but if the majority of the producers believe that there is a demand (which there undoubtedly is), then the price should not fall below £14.

REPORT ON MANURE MATERIAL.

During the week there has been less doing in phosphatic material, business being checked by high prices demanded. The value of nitrogenous material is scarcely maintained.

Owing to the upset at the works and destruction of property caused by the recent cyclone in America, shippers of South Carolina phosphate rock are just now practically off the market. Peace River rock is held for more money, and probably something like 7½d. would have to be paid for any early shipment. Florida, 75/80%, rock may still be had at 8½d. per unit, in cargoes c.i.f. to good United Kingdom ports, 1894 shipment.

River Plate bones are in request, and several cargoes have changed hands at £4. 15s. per ton to direct United Kingdom ports. Sales of crushed Kurrachee bones have been made at £4. 12s. 6d., ex quay Liverpool, and that price would have to be cabled out for further quantity. Bombay bone meal is firmer, and nothing under £4. 15s., full delivered terms, would be accepted Liverpool, Glasgow, Hull, or London.

Nitrate of soda is quiet, but fairly steady. On spot ordinary quality may still be had at 9s. 3d., and refined at 9s. 4½ per cwt. Due cargoes are worth 8s. 10½d. to 9s. 1½d. per cwt., according to test and size. September-October shipments may be quoted 9s. 3d. to 9s. 4½d. per cwt.

There is nothing doing in miscellaneous nitrogenous material.

MISCELLANEOUS CHEMICAL MARKET.

In the alkali trade stocks have been largely curtailed owing to the limitation of output, and there is very great activity in demand for all the products—especially for caustic soda and bleaching powder for near deliveries. Up to the present there has been no alteration in the nominal quotations, but further advances are looked for. Bleaching powder £8. 10s. nett, f.o.r. makers' works, and £9. hardwoods, f.o.b. Liverpool. Caustic soda, prices stand at:—f.o.b. Tyne, 77%, £11. 10s.; f.o.b. Liverpool, 74%, £11. 5s.; 70%, £10. 5s.; 60% £9. 5s.; cream, 60%, £9., 10 ton lots and upwards. Soda ash is fairly active owing to the same causes affecting output, but there is nominally no change in price. Ammonia alkali, 58%, £4. to £4. 2s. 6d., f.o.r. makers' works, in bags. Leblanc ash 1¼d. per degree, f.o.r. Soda crystals firm. Bicarbonate, advanced, price £6. 15s. to £7. f.o.b. Sulphate of copper is a stronger market at £15. 10s. to £15. 15s. per ton, f.o.b. In white powdered arsenic business has been done at £13. 10s. f.o.r. Garston. Brown acetate of lime rather firmer at £6. per ton. Grey acetate of lime scarce. Foreign white sugar of lead is steadily maintained at £25. 15s. c.i.f. Acetate of soda unchanged. Borax is offering in some quarters at rather lower rates. In aniline oil and salt the trade is still quiet, and prices without improvement. Sulphocyanides firm—prices are:—barium, 5d. per lb.; ammonium 7d. per lb.

LIVERPOOL OIL AND COLOUR MARKET.

WEDNESDAY.

OILS.—Palm oil has been firm all the week, and is to-day scarcer. Sales during week have been fairly good. Lagos is still quoted £24. 5s. per ton, transit. Olive is firm, and sellers are not anxious to sell, preferring to hold till better prices can be obtained. The request is good. The firmer disposition indicated in linseed has increased, and price is now 22s. 3d. to 22s. 6d. per cwt. for Liverpool makes in export casks. Cottonseed: Liverpool refined is inclined to harden, but price as yet remains at 21s. 9d. to 23s. per cwt. Castor oil is rather quieter, but prices are unaltered for good seconds Calcutta at 2½d. to 2¾d., and first pressure French 2½d. to 2¾d. per lb. Tallow is steady, and there are good sales of North American at last week's quotations.

ther easier : common, 3s. 7½d. to 3s. 9d. ; medium, 7s. 6d. Spirits of turpentine are subject to frequent variations, and own, price ranging from 22s. to 22s. 3d. per cwt. Petroleum d, both as regards price and position.

IRS are steady without alteration in prices. Oxfordshire, common, £10., medium, £12., best, £15.; s, common, 40s.; medium, 50s., best, 60s.; Welsh, best, nds, 50s., and common, 18s.; Irish, Devonshire, 40s. to ch, J.C., 55s. to 60s.; M.C., 65s. to 67s. 6d. Umber: uiet; Devonshire, 50s. to 55s. White lead, red lead, and nc unchanged. Venetian red, £6. 10s. to £10. Cobalt: oxide, 9s. 9d.; black, 9s.; blue, 6s. Zaffres: No. 1, No. 2, 2s. 6d. Oxide of iron: Common, £6.; medium, est, £20. Zinc oxide, £23. to £25.

TYNE CHEMICAL REPORT.

TUESDAY.

ls continue steady, though the demand is not very active. about as follows:—Soda crystals, £2. 15s. per ton. Bleach- r, £8. 15s. per ton. Caustic soda, £11. 10s. for highest Sulphur, £4. 5s. per ton.

g powder, softs, £8. 15s. per ton; hards, £9. per tic soda, 76/77%, £11. 10s. per ton, 70%, £10. per vered sulphur, 2 cwt. bags, £4. 5s. per ton; soda ash, per ton, 52%, £4. 7s. 6d. per ton, 56%, £4. 15s. per i, 36%, £3. 15s. per ton; white alkali, 48%, £4. 15s. per £5. per ton, 52%, £5. 5s. per ton; hyposulphite of soda, in isks, £7. per ton, ditto, in 1 cwt. kegs, £7. 15s. per ton; soda, 75° Tw., £2. 15s. per ton, 100° Tw., £3. 10s. per Tw., £3. 17s. 6d. per ton; soda crystals, in casks, £2. 15s. gross weight, in 2 cwt. bags, £2. 15s. per ton nett lorate of potash, 8½d. per lb. less 6%; pearl hardening, a nett; pure white sulphate of alumina, £4. 2s. 6d. per ton; £7. 10s. per ton; chloride of barium, £7. 10s. per ton; of alumina, £28. 15s. per ton nett; aluminate of soda, per ton nett; in 5 ton lots, £28. 10s.; hydrate of barium, on nett.

urham salt: There is no change to report in this article, inues steady at 9s. 6d. per ton f.o.b. Tees nett.

The coal trade is steady with a strong demand for best an steam coals, and sales are reported at 13s. per ton free and the collieries are working full up. Second-class steam good demand, but small steam coals is abundant and may be ined at 4s. 9d. to 5s. Best Durham gas coal is in strong Bunker coals are steady, and the prices varies from 8s. for up to 12s. per ton free on board for best Durham screened. per ton, with a steady demand.

L PAINT, OIL, AND COLOUR REPORT.

TUESDAY.

The deplorable coal strike continues to be felt here most shewn by the Customs return for the week, the export being ainst 30,000 during the same week a year ago. The results shown here, the cessation of many manufacturers gives our neighbours a chance of which they are not slow to avail

A feature of this week's imports is the arrival of a tank ontaining 872,454 gallons of petroleum. The exports of cotton oils show a considerable decrease, being linseed oil against 1,628 cwts. the same week a year ago. Cotton oil against 4,102 cwts. compared with same time. Linseed scarce on spot, and worth 21s. 3d. naked. For the month, here are sellers at 20s. 6d.; October-December, 19s.; and pril, 18s. 9d. to 18s. 10½d.; casks 17s. 6d., and ordinary 6d. per ton extra. Cottonseed oil, refined, steady at 20s., and same quotation for the month October offers at 19s. mber-April, 17s. 9d. sellers. Rape oil, in casks, 25s.; 32. to £38. per tun; coast cod oil, £17. 10s. to £20. per g oil, £16. 10s. per ton; sod oil in fair demand, £15. to n; pine oil, £7. per ton; anti-friction grease, from £6.; l grease, £8. per ton; engine oil, 1s. 3d. to 1s. 9d. per linder oil, from 1s. to 2s. per gallon; petroleum jellies, from cheaper.

Linseed cakes are quiet at late rates. Cotton cakes have s. per ton owing to the higher rates for seeds. The prices seed cakes, 95% purity, £8. 12s. 6d.; ordinary, £7. 5s. to Russians, £8. 10s.; Americans, £7. 10s. Cotton cakes.— e careless sellers below £5. 15s., as with the advanced price y cannot be done for less at a profit.

PAINTS—The exports of painters' colours and chemicals were each below the same week a year ago, the total of the former being 1,462 packages, against 1,626 packages, and of chemicals, 762 packages against 1,193 packages. The prices current are:—Oxide of zinc, £24. per ton; white and red lead unchanged; lime blue, from 16s. per cwt.; French ochre, 60s. per ton; oxide of iron, dry, £9. to £18. per ton; Venetian red, £6. to £10. per ton; ready mixed paints in 1, 2, 4, 7 and 14 lb. tins from 28s. per cwt.; enamels, 4s. 9d. dozen; oak varnish from 6s. per gallon.

THE METAL MARKETS.

LONDON, WEDNESDAY.—Pig iron dull. Scotch warrants closed at 42s. 7½d. cash, Middlesbrough 35s. 3d. cash, and hematite 44s. 11d. Copper firm: Chili bars, G.O.B.'s and G.M.B.'s closed at £43. 1s. 3d. to £43. 8s. 9d. cash, and £43. 8s. 9d. three months. Tin easier: Straits closed at £80. 7s. 6d. to £80. 10s. cash, and £80. 12s. 6d. to £81. 2s. 6d. three months; Australian, £82.; English ingots, £86. Lead firmer: Spanish, £9. 16s. 3d. to £9. 17s. 6d.; English, £9. 17s. 6d. to £10. 2s. 6d. Silesian spelter: Ordinary, £17. 15s. Nickel, 1s. 8d. Antimony, £38. Quicksilver: First hands, £6. 10s.; second hands, £6. 9s. Copper shares unsettled. Cape, 1¼ to 1½. Copiapo, 1¾ to 1⅞. Libiola, 2¾ to 2⅞. Mason and Barry, 1¾ to 1⅞. Rio Tinto, 13¼ to 13¾. Tharsis, 4½ to 4¾. Namaqua, ¾ to 1.

WOLVERHAMPTON, WEDNESDAY.—On 'Change to-day a slightly easier tone in block sheets was reported, transactions being announced in lattens at £7. 12s 6d. Such a price is believed, however, to be purely exceptional, and most makers continue firm. Pigs were very stiff, several Derbyshire brands being withdrawn from the market owing to the continued want of coke for the furnaces. Some users have been paying 50s. per ton for small parcels out of stock. Staffordshire all-mine foundry 67s., iron rods £6. 5s. Staffordshire furnace coal 14s.

GLASGOW, WEDNESDAY.—Market easier, with small business. Scotch done at 42s. 8½d. and 42s. 8d. cash, also at 42s. 11d. and 42. 10½d. one month; closing with buyers at 42s. 7½d. cash, sellers ask 42s. 8d. Cleveland closes with buyers at 35s. 3d. cash, sellers ask 35s. 3½d. Cumberland hematite closes with buyers at 44s. 11d. cash, sellers ask 45s. 1d. Middlesbrough hematite closes with buyers at 43s. 3d. cash, sellers ask 43s. 6d.

THE COPPER MARKET.

Messrs. Harrington and Co., in their fortnightly report dated Liverpool, September 2nd, 1893, state:—The Chili Charters for the past fortnight are not yet to hand, and are estimated as 1,000 tons, which with the same quantity for the previous fortnight makes a total of 2,000 tons for the month, thus making the total since 31st December last, 14,150 tons against 15,050 tons same time last year. Chili exchange, 15¾d.

During the past fortnight the sales of G.m.b.'s and G.o.b.'s amounted to very near 10,000 tons, lowest prices were £40. 12s. 6d. cash, and £41. 5s. three months. The highest values were on August 30th, when £41. 13s. 9d. and £42. 5s. were realised for the above deliveries. Yesterday the market closed steady at £41. 11s. 3d. cash, and £42. 1s. 3d. three months.

The statistical figures shown below are certainly most encouraging.

The Parrot Company's mines and works at Butte, Montana, have been closed down, their output was between 5,000 and 6,000 tons fine copper last year. We have also been informed of the closing down of the Huron and the Copper Falls mines in America.

The total stocks in Liverpool, Swansea, London, and Havre are 44,011 tons, against 44,557 tons on the 15th ult., showing a decrease of 546 tons for the fortnight. The figures for the previous fortnight showed a decrease of 1,326 tons, thus making the decrease 1,872 tons for the month. The stocks include about 2,400 tons of copper sold, but not yet delivered to smelters. The visible supply for the fortnight is 48,381 tons, against 49,656 tons on the 15th August, showing a decrease of 1,275 tons. The month's figures show a decrease of 2,235 tons. The stock of English G.M.B.'s in Liverpool has been decreased from nine to eight tons. Refined and manufactured sorts are firm. Quotations being:—Tough cake, £45. to £45. 10s.; best select, £45. 15s. to £46 5s.; Indian sheets, £51.; strong sheets, £53.; and yellow metal sheets, 4½d. per lb.

The sales of furnace material comprise—at Liverpool: 650 tons Argenterious Anaconda Matte and 61 tons Argenterious Chili Regulat, on private terms; 800 tons ordinary Boston Montana Matte (600 tons to Liverpool and 200 tons to Swansea, old syndicate stock), at 8s. 3d.; and 200 tons Portuguese ore, low produce, to arrive, at 7s. 3d. per unit.

WEST OF SCOTLAND CHEMICALS.

GLASGOW, TUESDAY.

An increased demand for bleaching powder and chlorate of potash is reported, but without any further advance in price as yet. Bichromate of potash and bichromate of soda have also been in rather better enquiry during the past two or three weeks, consequent on the late improvement in dyeing and calico printing makers' combination prices remain unchanged. In the mineral oil and paraffin section there is no change of quotation, except in the case of gas making oil, which has made a further advance. Various other gas corporations are adopting the oil-gas enriching method, and it is likely to become general, unless the value of the particular grade of oil required should rise above the practicable mark. Sulphate of ammonia towards the close of the week partly recovered tone, and the lowest at which buyers could get supplied, prompt delivery, was £14. 17s. 6d. So many of the iron furnaces in Scotland are closed just now that the production of sulphate is very much curtailed.

Chief prices current are:—Soda crystals £2. 15s. nett, Tyne; soda ash £5. 5s. nett, Tyne; refined alkali £4. 15s. to £5. 5s. nett, Tyne; alum in lump £5. nett, Glasgow; caustic soda, white, 74°, £11. 70/72° £9. 10s., 60/62° £8. 10s., and cream 60/62° £8. 5s., all nett, Liverpool; bleaching powder £8. 10s. to £8. 15s. nett Tyne; salt-cake 24s.; borax, English refined, £30., and boracic acid, £37. 10s. nett, Glasgow; bicarbonate of soda, 5-cwt. casks, £6. 15s., and 1 cwt. casks £7. less 2½%, Liverpool; bichromate of potash, 4½d. nett, for Scotch and English deliveries (for export, 4¼d. nett f.o.b. Glasgow); bichromate of soda, 3¾d. nett, for Scotch and English deliveries (for export, 3½d. nett, f.o.b. Glasgow); chlorate of potash 9d. less 5% Liverpool; nitrate of soda, 9s. 3d.; sulphate of ammonia, £14. 17s. 6d., prompt, f.o.b. Leith; sal ammoniac, first and second white, £37. and £35. less 2½% any port; sulphate of copper, £15. less 5% Liverpool; paraffin scale, hard and soft, 1½d. per lb; paraffin wax 120° semi-refined 2¾d.; paraffin spirit (naphtha) 4¼d. a gallon spot; paraffin oil, burning, standard No. 1 grade, 5d per gallon at works, for Scotch buyers (English sales ½d. to ¾d. lower); ditto (lubricating) 865° £4. 7s. 6d., 885° £4. to £5. 10s., and 890/895° £4. 15s. to £6. 10s. Week's imports of raw sugar at Greenock were 12,222 bags.

New Companies.

Anderson, Anderson, and Anderson, Limited.—CAPITAL £50,000. in 1,000 preference shares and 4,000 ordinary shares of £10. each. This company has been formed to acquire the goodwill and business carried on formerly in various places under the style of Anderson, Anderson, and Anderson, indiarubber merchants and manufacturers, etc. The subscribers to the memorandum of association are:—L. W. Anderson, Russettings, Bournemouth, married woman; J. H. Anderson, 35, St. Paul's Churchyard, London, E.C., indiarubber manufacturer; T. V. Anderson, 35, St. Paul's Churchyard, London, E.C., indiarubber manufacturer; C. A. Anderson, 37, Queen Victoria-street, London, E.C., solicitor; H. C. Anderson, 35, St. Paul's Churchyard, London, E.C., indiarubber manufacturer; P. J. Anderson, 35, St. Paul's Churchyard, London, E.C., indiarubber merchant; G. T. Anderson, Stock Exchange, London, E.C., broker.

Chemical and Electrolytic Syndicate, Limited.—CAPITAL £39,000. in shares of £5. each. This company has been formed to enter into an agreement with Messrs. C. H. Maxwell Lyte and Professor George Lunge (of Zurich), to acquire any inventions relating to the manufacture of bleaching powder, caustic soda, white lead, etc., by

electrolysis, and to carry on the business of manufacturing and electro-chemists. The subscribers to the memorandum of association are:—W. H. Wickham, Wimbledon, solicitor; H. K. Baynes, 52, Gloucester Crescent, London, W., solicitor; F. Roost, Crouch Hill, London, clerk; F. Edwards, Mornington Crescent, London, N.W., clerk; C. Flower, Chelsea, clerk; E. C. Daintrey, Anerley, London, solicitor; J. Thompson, Crouch Hill, London, N., clerk.

E. and H. Allison, Limited.—CAPITAL £10,000. in shares of £10. each. This company has been formed to acquire the wholesale business of drysalter and oil merchant formerly carried on at Kingston-on-Hull by Mr. E. Allison under the style of E. and H. Allison. The subscribers to the memorandum of association are:—E. Allison, 3, Russell Place, Hull, wholesale druggist, etc.; A. J. Allison, 3, Russell Place, Hull, married woman; W. A. Allison, 10, Arnold-street, Hull, wholesale druggist; J. M. Allison, 10, Arnold-street, Hull, married woman; J. E. Johnson, Halesworth, chemist, etc.; E. S. Johnson, 16, Stanley Terrace, Hull, married woman; M. J. Allison, 3, Russell Terrace, Hull, spinster.

The Patent List.

This list is compiled from Official sources in the Manchester Technical Laboratory, under the immediate supervision of George E. Davis and Alfred R. Davis, who report professionally upon the value of Chemical Patents.

APPLICATIONS FOR ENGLISH LETTERS PATENT.

Improvements in Sugar Boiling Pans. G. Hodson. 16,163. August 28.
Recovering Gold from Sea Water. H. C. Bull. 16,176. August 28.
Extraction of Zinc. L. V. J. Lynen. 16,180. August 28.
Manufacture of Soap. Read, Holliday, and Sons, Limited. 16,201. August 28.
Improvements in Steam Boiler Furnaces. H. H. Lake. 16,208. Aug. 28.
Improvements in the Combustion of Solid Fuel. R. Nobel. 16,220. August 28.
Extracting Gold and Silver. C. M. Pielstick. 16,228. August 29.
Improved Gas Making Apparatus. A. E. Dinsmore. 16,232. August 29.
Self-opening Hermetically-sealed Chemical Fire Bucket. C. W. Robinson. 16,263. August 29.
Electrodes for Secondary Voltaic Batteries. G. Philippart. 16,265. Aug. 29.
Improved Liquid Fuel, etc., Injectors. W. Dandison. 16,278. August 29.
Fire Extinguishers. A. L. Boul. 16,298. August 29.
Improvements in Electric Meters, Dynamos, Electrolysis of Solutions, Manufacture of Sodium and Sodium Substitutes, Manufacture of Potassium Cyanide, Gold Extraction, and Recovery of Tin from Scrap. J. Swinburne. 16,307. August 30.
Steam Traps. J. H. Dewhurst. 16,338. August 30.
Improved Incrustation Preventer. F. Buckland. 16,352. August 30.
New Acid Colouring Matters. B. Willcox. 16,370. August 30.
Extraction of Gold, etc., from its Ores. J. P. Van Der Ploeg. 16,417. August 31.
Treating Sewage and Waste Waters. G. Jarmain. 16,522. September 2.
Fuel Briquettes. R. Fegan. 16,538. September 2.
Dyeing with Paranitriline, Fabrics Grounded with Beta-naphthol. O. Imray. 16,551. September 2.

Gazette Notices.

PARTNERSHIP DISSOLVED.

A. JACKSON, F. G. JACKSON, and F. A. HERD, manufacturers of enamelled iron plates, etc., Aston, Birmingham, and Fleet-street, E.C., under the style of the Permanent Enamelled Iron Co.
W. J. ROBERTSON and F. M. BALFOUR, under the style of J. Williams and Co., Liverpool and Widnes, manure manufacturers and merchants.
W. PEARSON, F. J. BARTON, and S. J. W. CLARK, under the style of Pearson, Barton, and Co., Chester, drysalters.

IMPORTS OF CHEMICAL PRODUCTS

AT

THE PRINCIPAL PORTS OF THE UNITED KINGDOM.

LONDON.

Week ending September 2nd.

Acetic Acid—

Holland, 4 pkgs. Beresford & Co.
" 100 J. Owen

Acetone—

Holland, 53 pkgs. A. & M. Zimmermann

Alkali—

France, 440 c. Arnati & Harrison

Asbestos—

Italy, £100 London Asbestos Co.
" 298 British " & Co.
" 58 Tingle, Jacobs, & Co.
Canada, 330 W. Byford

Barytes—

Belgium, 44 cks. W. Harrison & Co.
Holland, 20 J. L. Lyon & Co.
Germany, 55 R. W. Greef & Co.
Belgium, 33 J. L. Lyon & Co.

Borate of Lime—

Persia, 150 pkgs. M. D. Co.

Caoutchouc—

U. States, 40 c. Anning & Cobb
" 94 Prop. Bull Wf.
Penang, 48 L. & I. D. Jt. Co.
" 9 E. Boustead & Co.
Tamatave, 107 Procter Brs.
E. Indies, 49 Kleinwort, Sons, & Co.
Aden, 22 Gray, Dawes, & Co.

Zanzibar, 62

Clarke & Smith

" 9 L. & I. D. Jt. Co.

Beira, 79 "

Germany, 18 Prop. Bull Wf.

" 32 T. H. Lee

France, 3 Mess Parisiennes

Madagascar, 78 Procter Brs.

E. Indies, 41 Hale & Son

" 16 Lewis & Peat

Cape, 210 L. & I. D. Jt. Co.

P.E. Africa, 209 "

Carbonic Acid Gas—

Holland, 40 pkgs. Volcanic Aeration Co.

Castor Oil—

E. Indies, 34 brls. L. & I. D. Jt. Co.
Italy, 25 Stebbing & Co.
France, 5 Potter & Clarke
" 14 Beresford & Co.
" 6 Grindley & Co.
E. Indies, 20 cs. Co-op Lightge. Association, Ltd.

Caustic Potash—

France, 100 c. F. W. Berk & Co., Ltd.
" £15 Spies Brs & Co.

Chemicals (otherwise undescribed)

Germany, £390 45 pkgs. A. & M. Zimmermann
" 6 2 Phillips & Graves
" 25 Domeier & Co.
" 119 11 T. H. Lee
Holland, 7 Beresford & Co.
Germany, 10 A. F. White & Co.

Cottonseed Oil—

U. States, 31 cs. Williams, Torrey, & Co., Ltd.

Cream of Tartar—

U. States, 6 pkgs. L. & I. D. Jt. Co.
France, 5 F. C. Devon & Co.
Spain, 5 W. C. Bacon & Co.
Holland, 24 Middleton & Co.
France, 15 W. C. Bacon & Co.
" 10 B. & F. Wf. Co., Ltd.

Dyestuffs—

Italy, 158 pkgs. Thames S. T. & L. Co., Ltd.
" 1,153 B. Jacob & Sons

Cochineal
Canaries, 16 pkgs. Kuhner, Henderson, & Co.
" 18 Marshall & French

Extracts
Belgium, 10 pkgs. T. H. Lee
France, 150 B. & F. Wf. Co., Ltd.
U. States, 7 W. Burton & Sons

Austria, 450 A. J. Humphrey
Holland, 1 Loder, Son, & Co.
Denmark, 10 Bailey & Leatham
Germany, 10 T. H. Lee
Norway, 1 Johnsen & Jorgensen

Fustic
B. W. L., 45 t. Gillespie Brs. & Co.

Gambier
Singapore, 222 pkgs. Brinkmann & Co.
E. Indies, 225 "

Indigo
E. Indies, 16 chts. Perry & Co.
" 3 cs. P. Macfadyen & Co.

" 2 Croysdale & Co.
U. States, 25 Parsons & Keith

Logwood
B. W. L., 45 t. Gillespie Brs. & Co.

Madder
France, 3 pkgs. Skillbeck Brs.

Myrabolams
E. Indies, 1,632 pkgs. A. Hagan
" 1,000 W. France & Co., Ltd.
" 1,200 W. Shelcott

Orchella
Ceylon, 19 pkgs. L. & I. D. Jt. Co.
E. Indies, 12 "

Saffron
S. Russia, 1 pkge L. & I. D. Jt. Co.
Japan, 1 H. Ahrens & Co.

Sumac
Italy, 100 pkgs. H. Johnson & Sons

Austria, 20 M. D. Co.
Italy, 1,150 J. Kitchin, Ltd.
" 900 W. Shelcott
" 500 Beresford & Co.
" 450 Sollas & Sons
" 105 J. Greig

Tanner's Bark
Sydney, 464 t. Deering & Robottom
Belgium, 35 Leach & Co.

Farina—
Holland, 100 pkgs. Deutschmann & Co.
Germany, 100 Prop. Scott's Wf.

French Chalk—
Austria, £455 Magee, Taylor, & Co.

Glucose—
U. States, 50 pkgs. 300 c. Page, Son, & East
" 50 305 c. P. Windmuller & Co.
France, 200 200 L. Norman & Co.
" 700 700 Barrett, Tagant, & Co.
Germany, 100 100 Perkins & Homer

U. States, 135 690 Beck & Pollitzer
" 50 302 R. G. Hall & Co.

" 130 547 L. Norman & Co.
" 180 900 Elkan & Co.
" 1,000 1,000 Beresford & Co.
" 500 500 Trier, Meyer, & Co.
" 500 500 P. W. Hore & Co.
" 550 3,351 L. Sutro & Co.

Litharge—

Germany, 4 cks. H. Lambert

Manganese—

Japan, 100 t. Sawyer, Sons, & Oakley

Methyl Alcohol—

Germany, 5 dms. Elkan & Co.
" 15 Stein Brs.

Mica—

Germany, £14 T. H. Lee
Ceylon, 45 W. M. Smith & Sons
Japan, 20 Bot. & Nich. Ws. Co., Ltd.
E. Indies, 25 L. P. D. Co.

Ochre—

Holland, 5 cks. 17 cs. Phillips & Graves
France, 125 W. Harrison & Co.
" 5 brls. Williams, Torrey, & Co.

Oxalic Acid—

Belgium, 5 pkgs. T. Palmer

Paraffin Scale—

U. States, 2,437 brls. J. H. Usmar & Co.

Paraffin Wax—

U. States, 777 brls. 230 bgs. J. H. Usmar & Co.
" 90 Prod. Brokers Co.
" 156 pkgs. G. H. Frank

Phosphate Rock—

" 50 t. Lawes Chemical Manure Co.
U. States, 2,835 Anglo Contl. G. Wks.

Pitch—

N. Russia, 400 brls. Link, Moeller, & Co.
" 14 Berg, Sons, & Co.

Plumbago—

Germany, 100 brls. Thredder, Son, & Co.
" 41 cks. B. Gallaway & Co.
" 140 cs. Prop. Scott's Wf. Craven & Co.

Potassium Bicarbonate—

Holland, 9 c. A. & M. Zimmermann

Potassium Carbonate—

France, 80 c. Spies Brs. & Co.
" 50 J. A. Reid

Potassium Oxymuriate—

U. States, 400 pkgs. G. Boor & Co.

Potassium Permanganate—

Germany, 20 pkgs. H. Lorenz
" 15 Spies Brs. & Co.

Potassium Prussiate—

Belgium, 5 pkgs. T. Palmer

Potassium Sulphate—

Germany, 4 pkgs. Beresford & Co.

Pumice Stone—

Italy, 2 t. H. A. Litchfield & Co.
" 20 Stobbs, Wilson, & Co.

Pyrites—

Spain, 2,140 t. C. Tennant, Sons, & Co.
" 715 Anderson, Anderson, & Co.

Rosin—

U. States, 168 brls. Tennant, Sons, & Co.
" 139 Fairclough, Dodd, & Co.
" 154 G. Nutter & Co.
" 108 Williams, Torrey, & Co.

Rosin Oil—

France, 199 brls. Fleming's Oil & Chemical Co.

Saltpetre—

Germany, 100 cks. P. Hecker & Co.
" 2 J. A. Reid
E. Indies, 648 bgs. Ralli Brs. & Co.
" 1,270 Lucas & Spencer's Wf.

Silica—

Norway, £10 S. C. Dk. Co.

Soda—

Germany, 69 c. H. Lambert
Holland, 500 Beresford & Co.

Sodium Acetate—

France, 42 pkgs. S. F. Waters & Co.

Sodium Hyposulphite—

Germany, 16 pkgs. Beresford & Co.
" 16 F. Boehm

Stearine—

France, 80 bgs. Walbaum & Tosetti

Sulphur—

Italy, 25 t. C. J. Capes & Co.
" 5 M. D. Co.
" 650 Brandram Brs. & Co.
" 150 B. Jacob & Sons
" 100 W. C. Bacon & Co.
" 8 C. J. Capes & Co.

Talc—

France, £10 C. F. Gerhardt
Ceylon, 60 J. Swire & Sons

Tallow and Stearine—

U. States, 14 cks. L. & I. Dk. Co.

Tar—

N. Russia, 2,370 brls. Linck, Moeller, & Co.
" 250 Elkan & Co.
" 350 Berg, Sons, & Co.
" 250 Page, Son, & Co.
" 3,796 W. F. Malcolm & Co.

Tartar—

Italy, 21 pkgs. Howards & Sons

Tartaric Acid—

Holland, 21 pkgs. B. & F. Wf. Co., Ltd.
" 20 Middleton & Co.
" 16 B. & F. Wf. Co., Ltd.

Turpentine—

N. Russia, 103 brls. C. B. Leighton

Ultramarine—

Germany, 40 cks. W. Thatcher
" 4 H. Lambert
Holland, 20 Hernu, Peron & Co.
Belgium, 8 brls. W. Harrison & Co.
" 2 pkgs. H. Kohnstamm

Varnish—

U. States, 37 pkgs. Beck & Pollitzer
" 6 Davies, Turner, & Co.
France, 12 Flageolet & Co.
Belgium, 2 J. & T. Seddon
U. States, 10 Dawson Brs.

Vermilion—

Germany, 1 cs. Phillips & Graves

White Lead—

Germany, 25 cks. H. Lambert
Austria, 36 cs. Bailey & Leatham
Germany, 20 cks. Elkan & Co.
Holland, 36 brls. W. Balchin
" 50 T. & W. Farmiloe

Germany, 57 M. Ashby, Ltd.
" 35 P. Jantzen
" 12 G. Steinhoff
" 70 Petri Brs.
Belgium, 13 J. L. Lyon & Co.
" 2 cs. Hammond & Co.
" 1 Stobbs, Wilson, & Co.

France, 50 cks. W. Harrison & Co.
Holland, 10 Phillips & Graves
" 14 Blundell, Spence, & Co.
" 25 Spies Brs. & Co.
" 10 N. J. Fenner & Co.

Zinc Oxide—

Germany, 50 brls. M. Ashby, Ltd.
Holland, 25 Soundy & Sons

LIVERPOOL.

Week ending August 31st.

Alumina Sulphate—

Rotterdam, 37 cks.

Antimony—

Smyrna, 560 bgs. A. Sparrow & Co.
Mollendo, 150 sks. Brallara Amos
" 150 J. Zigolds
" 300 F. Huth & Co.
Antofagasta, 172 Brownells & Co.
" 62 Hainsworth, Watson & Co.

Barytes—

Antwerp, 42 cks. 50 bgs.
Rotterdam, 15

Boracic Acid—

Leghorn, 25 cks.

Caoutchouc—

Havre, 5 bbls. Cunard S. S. Co., Ltd.

Carbolic Acid—

Hamburg, 14 tbs.

Castor Oil—

Leghorn, 25 cs.
Calcutta, 350

Chloride of Lime—

Antofagasta, 750 bgs.

Colours—

Ghent, 1 brl. J. T. Fletche & Co.
Rotterdam, 22 cs. 26 cks.

Cottonseed Oil—

New York, 535 brls.

Cream of Tartar—

Barcelona, 5 cks.
Bordeaux, 1

Dyestuffs—

Algarrobbilla
Huasco, 17 bgs. J. Caro & Co.

Cochineal
Gr. Canary, 11 bgs. Sperling & Williams

Cutch
New York, 1,000 bxs.

Divl Divl
Hamburg, 288 bgs. 1 bx.

Extracts
Barcelona, 22 brls.
New York, 20 bxs. 10 T. Atkins & Co.
" 30 W. Bingham
" 20 cs. 24

Bordeaux
Ghent, 250 cks.
" 30

Fustic
Cienfuegos, 3 t.
Genoa, 1,029 bls. E. Boustead & Co.

Indigo
New York, 10 sms. Fruhling & Goschen

Sumac
Palermo, 1,320 bgs.

Valonia
Smyrna, 48 t. 3,308 bgs.
" 115½ Essayan, Shahum & Co

Glucose—

Hamburg, 99 cks.
New York, 300 brls.
Rotterdam, 20 cks.

Manganese—

Rotterdam, 12 cks.

Ochre—

Antwerp, 282 bgs.

Paint—

Boston, 30 cs. 1 bx.

Phosphate—

Treport, 400 t. Grainger & Co.

Phosphate Rock—

Port Royal, 2,500 t. W. Smith & Co.

Phospho Guano—

St. Nazaire, 8 sks.

Pitch—

Hamburg, 59 cks.
Antwerp, 10 J. T. Fletcher & Co.

Bordeaux, 25

Potash—

Hamburg, 18 cks.
Antwerp, 4 dms.

Potash Salts—

Hamburg, 190 t. 496 bgs.

Pumice Stone—

Leghorn, 3 crts.
Messina, 55 bgs. 15 brls.

Pyrites—

Huelva, 2,500 t. Matheson & Co.

Rosin—

Baltimore, 1,500 brls.
N. Orleans, 400

Salt—

Hamburg, 102 bgs.

Saltpetre—
Hamburg, 1,116 bgs. 90 kgs. 2 cks.
Calcutta, 13,234 Ralli Bros.
Rotterdam, 264

Salts of Tartar—
Rotterdam, 2 cks

Soap—
Kaifa, 44 cs. A. Klipstein
Leghorn, 200 Weaver & Sterry
New York, 2 Colgate & Co.
" 20 Elder, Dempster & Co.

N. Orleans, 929 brls.
Sodium Nitrate—
Pisagua, 12,928 bgs. Pacila & Jaz,
Pampo Nit. Co., Ltd.

Stearine—
Philadelphia, 5 bgs.
Antwerp, 6 bgs. J. T. Fletcher & Co.

Tallow—
B. Ayres, 147 pps. Haycroft
Petrick
Boston, 99 tcs. 65 brls. 40 hds.
New York, 5 hds. Co-op W'sale
Society, Ltd.
Philadelphia, 100 tcs. Richardson,
Spencer & Co.
" 56 tcs. 10 hds.

Tar—
Archangel, 1,857 brls. J. H. Hind
& Co.
" 1,451 brls.

Tartar—
Bordeaux, 7 cks.

Tartaric Acid—
Rotterdam, 3 cks. 20 kgs.

Tin Perchloride—
Antwerp, 2 cks. J. T. Fletcher
& Co.

Ultramarine—
Rotterdam, 17 cs. 5 cks.

White Lead—
Rotterdam, 16 cks.
Ghent, 18 brls.

Zinc Ashes—
Boston, 40 brls.

Zinc Oxide—
Antwerp, 95 brls. J. T. Fletcher
& Co.

Zinc White—
Hamburg, 20 cks.

HULL.

Week ending September 2nd.

Alum—
Rotterdam, 35 cks. W. & C. L.
Ringrose

Barytes—
Antwerp, 141 cks. Bailey &
Leetham
Bremen, 24 Veltmann &
Co.
Rotterdam, 21 J. Wilkinson

Bone Meal—
Antwerp, 105

Bone Meal—
Bombay, 4,394 bgs.

Caoutchouc—
Hamburg, 2 cs. C. M. Lofthouse
& Co.

Chemicals (otherwise undescribed)
Stettin, 31 cks. Wilson, Sons,
& Co., Ltd.

Christiania, 8
Dunkirk, 4 dms. 20 pks. Wilson, Sons,
& Co., Ltd.

Bremen, 4 Veltmann &
Co.
Antwerp, 76 Wilson, Sons,
& Co., Ltd.

Colours—
Hamburg, 3 dms. Bailey &
Leetham
Rotterdam, 1 ck 7 pks. G. Lawson &
Sons

Flushing, 30
" 1 cs. 6 Bräsch &
Rothenstein
Hamburg, 10 G. Malcolm &
Sons

Rotterdam, 4 37 cks. Hutchinson &
Son

Antwerp, 5 kgs. Blundell,
Spence & Co.

Dunkirk, 2 cks. Wilson, Sons,
& Co., Ltd.

Bremen, 3 cs. 5 pks. Veltmann
& Co.
Rotterdam, 16 3 cks. W. & C. L.
Ringrose
Flushing, 51 cks. 33 cs. Hutchin-
son & Son

Dyestuffs—
Alizarine
Flushing, 45 pks. G. Lawson &
Sons
" 39 cks. Hutchinson &
Son

Rotterdam, 50 G. Lawson &
Sons

Madder
Rotterdam, 1 cks. W. & C. L.
Ringrose

Myrabolams
Bombay, 2,328 bgs.
Shumac
Trieste, 3 bls. Wilson, Sons,
& Co., Ltd.

Palermo, 200 409 bgs. "
500

Farina—
Stettin, 103 bgs. Wilson, Sons,
& Co., Ltd.

Harlingen, 1,100
Ghent, 251 cs. Wilson, Sons,
& Co., Ltd.

Glucose—
New York, 150 pkgs.
Stettin, 500 bgs.

Guano—
Christiansund, 140 bgs. Wilson, Sons,
& Co., Ltd.

Kaolin—
Rotterdam, 266 bgs. Reckitt & Sons

Manure—
Rouen, 5 cks. Rawson &
Robinson

Mica—
Christiania, 2 cs. Wilson, Sons,
& Co., Ltd.

Nitrate—
Rotterdam, 20 cks. W. & C. L.
Ringrose

Ochre—
Antwerp, 93 bgs. Bailey &
Leetham

Paint—
Boston, 60 cs. Wilson, Sons,
& Co., Ltd.

Rotterdam, 2 dms. Blundell,
Spence & Co.

Phosphate—
Ghent, 1,616 bgs.

Pitch—
Archangel, 350 brls.

Saltpetre—
Hamburg, 25 cks. Bailey &
Leetham

Soap—
Trieste, 3 cs. Wilson, Sons,
& Co., Ltd.

Bari, 52
20
" Rotterdam, 1 G. Lawson &
Sons

Soda—
Rotterdam, 4 cks. Penny & Co.

Sulphur—
Catania, 50 t. 1,445 pks. Wilson, Sons,
& Co., Ltd.

Tallow—
New York, 58 brls. Wilson, Sons,
& Co., Ltd.

Boston, 30 pkgs.
Harlingen, 55 hds. 40 cks. "

Tar—
Archangel, 1,290 brls.
Uleaborg, 910 300 hf. brls.
" 924 300 J. Good
& Sons

Tartar—
Bordeaux, 1 ck.

Tartaric Acid—
Rotterdam, 11 cks. G. Lawson &
Sons

Bari, 75 Wilson, Sons,
& Co., Ltd.

Varnish—
Hamburg, 1 ck. Bailey &
Leetham

White Lead—
Rotterdam, 14 cks. Hutchinson &
Son

Antwerp, 25 Bailey &
Leetham

Rotterdam, 9 Fewster & Son
Zinc Oxide—
Rotterdam, 25 cks. Sissous Bros. &
Co.
" 10 Hutchinson &
Son

Zinc Sulphate—
Bremen, 10 cks. Veltmann &
Co.

GLASGOW.

Week ending September 7th.

Barium Sulphate—
Antwerp, 150 bgs.

Barytes—
Rotterdam, 67 pkgs.

Castor Oil—
Antwerp, 56 cks.

Cellulose—
Hamburg, 406 bls.

Chemicals (otherwise undescribed)
Hamburg, 1 cs.

Colours—
Hamburg, 73 cks. 8 cs.
Rotterdam, 10 brls. J. Rankine &
Son

Dyestuffs—
Alizarine
Rotterdam, 267 cks. 4 cs.

Cutch
Calcutta, 1 cs.
Rangoon, 596 bks.

Extracts
Antwerp, 2 cks.

Valonia
Smyrna, 505 t. Martin & Miller

Farina—
Antwerp, 10 bgs.

Glucose—
New York, 50 brls.

Ochre—
Rouen, 6 cks.
New York, 112 brls.

Paint—
New York, 6 brls.

Painters' Colours—
Antwerp, 1 ck.

Paraffin Wax—
Rangoon, 165 bks.

Pitch—
Antwerp, 10 cks.

Plumbago—
Colombo, 1 pkge.

Potash—
Hamburg, 9 cks.

Potassium Carbonate—
Hamburg, 7 cks.

Potassium Cyanide—
Antwerp, 150 cs.

Pyrites—
Huelva, 2,045 t. Tharsis Co.

Rosin—
Baltimore, 400 brls.
New York, 311

Saltpetre—
Calcutta, 1 cs.

Soap—
New York, 25 cs.
In transit, 2 1 bx.

Soda—
Rotterdam, 6 brls. J. Rankine &
Son

Stearine—
Rotterdam, 12 cks. J. Rankine &
Son

Tallow—
Philadelphia, 100 tcs.
New York, 50 hds.

Tartar—
Oporto, 5 cks.

Varnish—
New York, 21 brls.

Waste Salt—
Hamburg, 381 t. 344 cks. 1,226 bgs.

White Lead—
Rotterdam, 58 cks.

Zinc Oxide—
Hamburg, 50 cks.
Antwerp, 25
Rotterdam, 10 J. Rankine &
Son

Zinc Skimmings—
New York, 11 cks.

TYNE.

Week ending September 2nd.

Alum Earth—
Hamburg, 17 cks. Tyne S. S. Co.

Aniline Colours—
Rotterdam, 1 ck. 1 cs.

Barium Carbonate—
Rotterdam, 55 bgs.

Barytes—
Rotterdam, 54 cks.
Antwerp, 23 Tyne S. S. Co.

Colours—
Rotterdam, 3 cks. Tyne S. S. Co.

Cryolite—
Copenhagen, 2 cks.

Glucose—
New York, 100 brls.

Phosphate—
Fernandina, 1,601 t. Langdale's
Chemical Manure Co.
Antwerp, 230 "

Pyrites—
Huelva, 2,695 t. Scott Bros.
1,970

Rosin—
Savannah, 2,169 brls.

Saltpetre—
Hamburg, 3 cks. Tyne S. S. Co.

Sulphur—
Pomaron, 908 t. Mason & Barry

Turpentine—
Savannah, 100 cks.

Ultramarine—
Hamburg, 2 cks. Tyne S. S. Co.

White Lead—
Antwerp, 28 brls. Tyne S. S. Co.

GOOLE.

Week ending August 30th.

Alkali—
Hamburg, 10 cks.
Calais, 15 brls.

Caoutchouc—
Boulogne, 2 cks.

Dyestuffs—
Alizarine
Rotterdam, 127 pkgs.

Extracts
Rotterdam, 10 cks.
Rouen, 50 brls.
Dunkirk, 5 cs.

Fustic
San Juan del Sur, 970 t.

Logwood
Jamaica, 607 t.
Belize, 406

Dyestuffs (otherwise undescribed)
Boulogne, 2 cks. 1 cs. 52 pkgs.
Ghent, 5 brls.

Farina—
Hamburg, 490 bgs.

Glucose—
Dunkirk, 100 bgs.

Lead Acetate—
Hamburg, 32 cks.

Potash—
Rotterdam, 56 cks.
Antwerp, 5 dms.
Dunkirk, 40

Waste Salt—
Hamburg, 545 cks. 210 t.

GRIMSBY.

Week ending September 2nd.

Caoutchouc—
Hamburg, 4 bls.

Chemicals (otherwise undescribed)
Hamburg, 19 pkgs.

Farina—
Hamburg, 280 bgs.

Size—
Antwerp, 1 ck.

Tar Oil—
Antwerp, 26 cks.

EXPORTS OF CHEMICAL PRODUCTS

LONDON.

ending September 6th.

Lime—

7 c. £10

10 t. £200

8 c. £9

1 t. 2 8

24 126

5 t. 2 c. £25

8 cyls. £17

25 cks. £198

10 c. 16

5 t. 126

19 23

Chloride—

5 t. 15 c. £27

1 t. 5 28

1 4 38

2 6 70

6 14

Sulphate—

50 t. £700

250 3,500

25 375

45 640

49 560

20 drs. £16

trate—

5 c. £5

3 4

Powder—

4 t. 10 c. £14

7 cks. £80

7 c. £9

5 t. 13 260

6 21

10 15

5 9

4 cks. £31

37 cs. £97

12 c. 18

1 13

10 drs. 10

80 cks. 89 pkgs. 1,233

7 brls. 32

of Lime—

6 c. £6

ulphide—

9 drs. £35

6 t. 4 c. 75

da—

4 c. £9

16 30

14 17

6 t. 8 78

1 9 20

8 10 85

(otherwise undescribed)

7 pkgs. 11 c. £208

4 cs. 15

1 50

Sydney, 2 22

Danzig, 3 26

Copenhagen, 1 9

Lisbon, 4 kgs. 32

Coal Products—

Alizarine Dyes

Bombay, 84 kgs. £338

Aniline Dyes

New York, 16 cks. £125

Melbourne, 1 cs. 26

Wellington, 10 11

Aniline Oil

New York, 12 drs. £360

Aniline Salts

New York, 21 cks. £140

Anthracene

Rotterdam, 46 cks. £386

Benzol

Hamburg, 56 pkgs. £525

Rotterdam, 23 drs. 395

Coal Tar Dyes

Rotterdam, 2 cks. £17

Cresosote

Huelva, 4,500 brls. £1,781

Seizae, 16,000 gls. 147

Naphtha

Treport, 26 brls. £65

Paraffin Wax

Sydney, 50 cs. £150

Pitch

New York, 500 cks. £249

Abo, 80 t. 104

Rotterdam, 265 331

Suva, Fiji, 10 brls. 17

Sydney, 20 cs. 6

Alexandria, 150 45

Baltimore, 440 bgs. 132

Tar

Danzig, 250 brls. £125

Newcastle, 50 drs. 13

Colombo, 22 rults. 105

Hong Kong, 35 26

Tar Oil

Treport, 26 brls. £25

Coal Products (otherwise undes.)

Sydney, 200 dms. £39

Copperas—

Sydney, 2 t. 6 c. £6

Copper Sulphate—

Lyttelton, 1 t. 5 c. £20

Rotterdam, 4 19

Corrosive Sublimate—

Madras, 2 c. £24

Cream of Tartar—

Natal, 10 c. £38

Sydney, 2 t. 5 169

Adelaide, 1 15 146

Wellington, 18 76

Launceston, 1 5 95

Disinfectants—

Calcutta, 55 cks. 80 drs. £84

Colombo, 4 cs. 13

Adelaide, 2 8

Hamburg, 30 150

Wellington, 2 3 kgs. 19

Berlice, 2 15

Galatz, 5 c. 13

Dried Blood—

Paris, 18 t. 10 c. £130

Flowers of Sulphur—

Cape Town, 3 t. 3 c. £35

Melbourne, 1 10 12

Sydney, 1 8

Guano—

Genoa, 50 t. £500

Dunkirk, 50 6 c. 550

Hydrochloric Acid—

Shanghai, 2 c. £7

Hypsulphite of Lime—

New York, 11 c. £184

Manure—

Danzig, 49 t. 5 c. £190

Gothenburg, 187 3 479

Stettin, 1,291 19 4,539

Brest, 124 6 432

Treport, 9 19 60

Torreveja, 162 4 1,206

Tarragona, 69 4 552

Nitric Acid—

Sydney, 10 cs. 5 c. £53

Shanghai, 4 11

Phosphorus—

Melbourne, 5 cs. £75

Potash Crystals—

Brussels, 9 c. £52

Halifax, 4 13

Potassium Bichromate—

Trinidad, 6 c. £22

Potassium Chlorate—

New York, 10 t. 16 c. £550

Madras, 10 38

Bombay, 2 2 cs. 27

Sydney, 7 10 465

Potassium Prussiate—

Launceston, 2 c. £9

Saltpetre—

Oporto, 5 t. 4 c. £104

Rio de Janeiro, 2 14 61

Sydney, 4 2 86

Newcastle, 10 11

Wellington, 1 25

Seville, 3 8 47

Sydney, 6 134

Townsville, 5 6

Sheep Dip—

Durban, 1 t. 14 c. £45

Sydney, 500 cs. 100 kgs. 1,618

Launceston, 100 300

Auckland, 22 pkgs. 55

Bombay, 156 46

E. London, 32 13

Natal, 10 26

Cape Town, 155 drs. 74

Kingston, 1 10

Gisborne, 100 300

Wellington, 650 360 2,205

Nelson, 40 36

Soda—

Kingston, 1 t. 7 c. £6

Cape Town, 2 2 9

Soda Crystals—

Port Said, 12 c. £3

Trinidad, 15 4

Demerara, 1 t. 5 5

Gibraltar, 12 2

Huelva, 1 17 7

Hong Kong, 1 1 4

Sodium Acetate—

Sydney, 2 t. 6 c. £63

Sodium Bicarbonate—

Trinidad, 15 c. £6

Jamaica, 10 4

Christchurch, 2 t. 13

Adelaide, 2 13

Sydney, 5 40

Sodium Hypsulphite—

New York, 9 c. £154

Sodium Sulphate—

Ghent, 100 t. £150

Strontium Nitrate—

Madras, 10 c. £13

Bombay, 9 13

Sulphur Dioxide—

Melbourne, 2 t. 9 c. £170

Sulphuric Acid—

Penang, 10 drs. £14

Superphosphate—

Riga, 267 t. £801

Memel, 524 5 c. 1,850

Barbadoes, 152 570

Stettin, 600 2,205

Lyttelton, 150 475

Tartaric Acid—

Melbourne, 1 t. 98

Wellington, 14 c. 74

Bombay, 2 11

Adelaide, 1 17 199

Sydney, 2 5 136

LIVERPOOL.

Week ending September 6th.

Alum—

Tripoli, 2 t. 10 c. £15

Alexandria, 6 10 39

Calcutta, 1 6

Rio de Janeiro, 1 2 6

Galatz, 10 13 1 q 55

Ibrail, 5 16 3 33

Malta, 1 4 6

Sydney, 2 16 14

Varna, 1 9 7

Hiogo, 22 10 1,235

Havana, 6 13 1 26

Ammonium Carbonate—

Carril, 5 c. 1 q. £8

Hamburg, 1 t. 35

Lisbon, 15 25

Havana, 12 23

Ammonium Chloride—

Philadelphia, 3 t. 10 c. £75

Tripoli, 6 3 q 11

Copenhagen, 2 1 44

Ammonium Sulphate—

Nantes, 21 t. 5 c. £257

Antwerp, 64 9 898

Copenhagen, 15 7 3 q 210

Barbadoes, 10 6 140

Hamburg, 231 9 2 3,373

Malaga, 50 750

Barcelona, 70 10 2 972

Amorphous Phosphorus—

Yokohama, 10 c. 3 q £382

Hiogo, 9 1 305

Kobe, 3 2 130

Asbestos—

San Sebastian, 100	Havana, 4	Opobo, 25	Melbourne, 40
Santander, 6	Ibrail, 13	Rio de Janeiro, 1	Odessa, 120
Savanna, 30	Lisbon, 25 brls. 2	Rotterdam, 204	Piræus, 20
Tarragona, 30	Ponce, 5	Trinidad, 29	Tunis, 20
Trieste, 45	Santiago de Cuba, 1	Anamboo, 9	
Vigo, 30	Valparaiso, 30	Bakana, 53	Soda Ash—
Chemicals (otherwise undescribed)	Cape Town, 2	Baltimore, 70	Algosa Bay, 8 cks.
Yokohama, 2 t.	Coquimbo, 60	Brisbane, 1	Antwerp, 234 bgs.
Calcutta, 15 c.	Gr. Bassam, 5	Copenhagen, 368	Baltimore, 67 tcs. 66
Kurrachee, 18	La Rochelle, 8	Fernando Po, 4	Boston, 18
Rotterdam, 16 2 q.	Manaos, 1 26	Ghent, 160	Canea, 100
Samsoun, 11 2	Old Calabar, 1	Guayaquil, 1	Ghent, 8
Larnaca, 4 3	Rotterdam, 70 brls.	Hamburg, 101	Hamburg, 59
China Clay—	St. John's, Nfld., 4	Honolulu, 7	Montreal, 47
Barcelona, 2 t. 6 c.	Santos, 4	Iceland, 95	New York, 215
Bombay, 72	Sydney, 55 dms	Lagos, 20	Penedo, 20
Boston, 26	Syra, 10	Montreal, 360	Philadelphia, 46
B. Ayres, 20	Painters' Colours—	Musaco, 15	Rio de Janeiro, 28
Calcutta, 100 cks.	Barcelona, 1 cs.	Noqui, 30 (approx.)	Rotterdam, 350
Rio de Janeiro, 4	B. Ayres, 226 brls. 54 cs. 66 pkgs. 63 cks.	Pt. Natal, 19	San Francisco, 135
Citric Acid—	Calcutta, 29 cs. 1 kg. 4 cks	Santos, 130 kgs.	Santander, 25
Carril, 4 c.	Cardenas, 2 brls.	Sierra Leone, 20	Syra, 230
Citrochloric Acid—	Constantinople, 300 kgs.	Sydney, 540	Valparaiso, 100
Lisbon, 1 c. 3 q.	Curacao, 38 pkgs.	Sydney, 303	Oporto, 10
Coal Products—	Galatz, 125	Wellington, 25	St. Petersburg, 173
Aniline Oil	Halifax, 12 brls.	Saltpetre—	Syra, 100
Rouen, 2 dms.	Hamburg, 32	Syra, 2 t. 14 c. 2 q.	
Aniline Salt	Humacao, 2	Piræus, 7	Roston, 560 brls.
Lisbon, 1 cs.	Macassar, 14	Pernambuco, 6	Constantinople, 50
Anthracene	Manaos, 4	B. Ayres, 20	Gibraltar, 60
Rotterdam, 27 cks.	M. Video, 14	Sheep Dip—	Gijon, 7
Naphtha	Para, 42	Punta Arenas, 2 t.	Iceland, 30
Rouen, 8 cks.	Seville, 24	B. Ayres, 20	M. Video, 20
Pitch	Alexandria, 20 dms.	Size—	Montreal, 350
Genoa, 120 t.	Antofagasta, 6	Magog, 3 cks.	Pernambuco, 100 cks.
Venice, 765	Antwerp, 37	Rotterdam, 5	Rotterdam, 50
La Rochelle, 149	Bahia, 4	Soap—	Batavia, 10
St. Nazaire, 243	Congo, 6 cs.	Algosa Bay, 1,787 bxs.	B. Ayres, 60
Tar	Diego Suarez, 60	Anamboo, 50	Ontario, 50
Roma, 10 brls.	Genoa, 10 bgs.	Axim, 130	Philadelphia, 280
Cobalt Oxide—	Gothenburg, 40	Barbadoes, 300	Syra, 100
Nagasaki, 3 c. 1 q.	Ibrail, 1 brl.	Batavia, 1,500	Sodium Bichromate—
Copperas—	Leghorn, 30	Benin, 300	Gijon, 3 t. 4 c.
Bombay, 33 t. 18 c. 3 q.	Limon, 1 262	Bombay, 53 cs.	Hamburg, 20
Calcutta, 5	Lisbon, 20	Cameroon, 175	Montreal, 12
Santos, 4 8	Mayaguez, 19	C. C. Castle, 55	Sodium Bicarbonate—
Beyrout, 5	Montreal, 67	Cape Town, 1,050	Alexandria, 100 kgs.
Copper Sulphate—	Rio de Janeiro, 6	Chama, 140	Algosa Bay, 20
Amsterdam, 2 t. 4 c.	Valencia, 1	E. London, 946	Auckland, 47
Konigsberg, 1 10 3 q.	Valparaiso, 27	Gibraltar, 570	Bilbao, 25 brls.
Bombay, 5	Veia Cruz, 21 pkgs.	Gr. Canary, 230	Calcutta, 250
Constantinople, 5 7 3	Zante, 14	Half Jack, 100	Constantinople, 40
Rouen, 5 13	Paraffin Scale—	Hong Kong, 455	Dunedin, 150
Bari, 9 13	Penang, 8 dms.	Honolulu, 224	Hamilton, 50 bgs.
Copenhagen, 4 2	Paraffin Wax—	Jersey, 40	Harve, 2 cks.
Ancona, 12 15 3	Genoa, 20 cs.	Lagos, 254	London, Ont. 5
Halifax, 10	Odessa, 8 cks.	Loanda, 30	Malta, 7
Gothenburg, 1	Phosphorus—	Maranham, 1	Marseilles, 50
Naples, 33 15 1	Shanghai, 16 c.	M. Video, 1	Montreux, 25
Beyrout, 7 1	San Juan, 5 cs	Mossel Bay, 50	M. Video, 20
Antwerp, 3 2 1	Plumbago—	New York, 207	Montreal, 200
Genoa, 4 2 1	Valparaiso, 10 cks	Old Calabar, 200	Nantes, 60
Lisbon, 2 6 1	Bahia, 1	Penang, 5	Naples, 46
Odessa, 3 1 3	Potassium Bichromate—	Philadelphia, 20	Rouen, 12
Wellington, N.Z. 1	Wellington, N.Z., 18 c.	Pt. Elizabeth, 1,400	San Francisco, 250
Disinfectants—	New York, 3 t. 15 c.	Pt. Natal, 774	Santos, 50
Bombay, 2 t.	Potassium Chlorate—	St. John's, Nfld., 510	Singapore, 9
Smyrna, 15	St. Petersburg, 12 t. 10 c.	Salt Pond, 20	Valencia, 100
Rouen, 2 9	Corunna, 1	Shanghai, 3,201	Wellington, 130
Havre, 2 2 3 q.	Gutajewsky, 5	Sierra Leone, 40	Cartagena, N.G. 40 brk.
Hamburg, 7 1	E. London, 5	Singapore, 200	New York, 100
Flowers of Sulphur—	Genoa, 3	Teneriffe, 1,015	Ontario, 25
Punta Arenas, 5 t.	Catania, 4	Trinidad, 553	Sodium Bichromate—
Guano—	Palermo, 3	Alexandria, 5	Ghent, 5 t.
Hamburg, 10 t.	New York, 26 1	Antofagasta, 22	Sodium Carbonate—
Gypsum—	Boston, 6	Brussels, 800	Barcelona, 54 cks.
Montreal, 20 t.	Rotterdam, 7 3	Calcutta, 4	Sodium Chlorate—
Lead Acetate—	Calcutta, 10	Coronel, 1	Hamburg, 4 kgs.
Calcutta, 8 t. 12 c.	Santos, 1	Dunedin, 100	Antwerp, 20
Lime—	Hamburg, 12	Harbor Grace, 50	Rouen, 4
Lagos, 2 t. 8 c.	Shanghai, 5	Havre, 360	Sodium Hyposulphite—
Limestone—	Hiogo, 435	Kingston, Jam., 70	Montreal, 25 kgs.
New York, 4 cs.	Potassium Prussiate—	Kurrachee, 18	Sodium Oxide—
Magnesia—	Naples, 1 t.	Las Palmas, 500	Marseilles, 16 cs.
St. John's, N.B., 10 cs.	Quicksilver—	Madras, 4	Sodium Silicate—
Magnesium Chloride—	Samarang, 3 botls.	Rangoon, 4	Barcelona, 100 brls.
Rangoon, 2 t. 7 c.	Salt—	Rotterdam, 200	Bilbao, 35
Magnesium Sulphate—	Adelaide, 167 t.	Rouen, 20	Passages, 32 cks.
Montreal, 10 kgs.	Amsterdam, 100	Santos, 12	Seville, 17 30
Santos, 60 brls.	Antwerp, 10	St. Thomas, 1	Shanghai, 4
Bombay, 170	Benin, 10	Smyrna, 10	Valencia, 60
B. Ayres, 20	Boston, 650	Stockholm, 30	Alicante, 32
Manganese—	Bona, 21 15	Sydney, 1,480	Oporto, 5
Philadelphia, 1 t. 6 c.	B. Ayres, 28 9	Tangiers, 50	Sodium Sulphate—
Manure—	Calcutta, 2,602	Valparaiso, 2	Hamburg, 16 cks.
B. Ayres, 1 t.	Cameroon, 110 7	Warre, 300	Sodium Supersulphate—
Metallic Sodium—	E. London, 10	Wellington, 100	N. Orleans, 22 dms.
Rotterdam, 2 t. 3 c. 2 q.	Manaos, 10 14	Soda—	Sulphur—
Paint—	Melbourne, 50	Gijon, 2 cks.	Calcutta, 2 t. 2 c. 1 q.
Corinto, 14 cs.	Nakskov, 250	Soda Alkali—	Dunedin, 1
Gibraltar, 1 cks.	New York, 105 7	Adelaide, 100 brls.	Boston, 200 8
		B. Ayres, 62	Antwerp, 15
		Galatz, 40	Halifax, 4
		Genoa, 20	Algosa Bay, 10
		Leghorn, 35	

Sulphuric Acid —		
Teneriffe,	18 c.	£10
Tartaric Acid —		
Alexandria,	2 c.	£12
Turpentine —		
Calcutta,	50 dms.	£40
Manila,	80	
Bathurst,	6	
Varnish —		
Alexandria,	2 cs.	
Bilbao,	1 ck.	
B. Ayres,	2	
Galatz,	4	
Genoa,	1	
Leghorn,	1	
M. Video,	2	
White Lead —		
Oporto,	1 ck.	
Manaos,	6 kgs.	
Zinc Chloride —		
Bordeaux,	10 t. 1 c.	£46
Rouen,	1	25
Zinc Sulphate —		
Oporto,	2 t. 11 c.	£40

HULL.

Week ending September 2nd.

Alkali —		
Liban,	100 pks.	
Uleaborg,	5 cks.	
Ammonium Sulphate —		
Stettin,	723 bgs.	
Aniline —		
St. Petersburg,	10 dms. 50 cks.	
Bleaching Powder —		
Naples,	32 cks.	
New York,	120	
Stettin,	72	
St. Petersburg,	7	
Wasa,	10	
Borax —		
Stettin,	11 cks.	
Carbolic Acid —		
Trieste,	60 cks.	
Caustic Soda —		
Antwerp,	12 kgs.	
Abo,	3 cks.	
Bremen,	2 tins	
Harlingen,	18 dms.	
Lilau,	159	
Naples,	35	
Reval,	215	
Trieste,	4	
Uleaborg,	1 ck.	
Chemicals (otherwise undescribed)		
Antwerp,	1 ck.	22 pks
Boston,	50	
Bremen,	1 cs.	
Christiania,	20	5
Christiansand,	9	167 slbs.
Copenhagen,	2	70
Genoa,	14 cs. 83	8
Gothenburg,	1	36 cs.
Hamburg,	4	130
Konigsberg,	10	10
Leghorn,	10	
Liban,	111	
Marseilles,	1	
Naples,	3	
Rotterdam,	27	34
Riga,	3	
Stettin,	56	234 10 pkgs.
St. Petersburg,	29	7
Trieste,	17	
Wasa,	10	
Chromate of Iron —		
Rotterdam,	6 cks.	
Cottonseed Oil —		
Antwerp,	301 cwt.	
Flushing,	100	
Fiume,	99	
Gothenburg,	60	
Hamburg,	1,344	
Konigsberg,	68	
Marseilles,	282	
Rotterdam,	1,740	
Stettin,	150	
Trieste,	549	
Creosote —		
Christiania,	1 cks	
Trieste,	20	
Dye-stuffs (otherwise undescribed)		
Antwerp,	4 bls.	
Bergen,	20	
Stettin,	82 bgs.	
Farina —		
Gothenburg,	2 cks.	
Linseed Oil —		
Bordeaux,	35 cwt.	

Bremen,	105	
Christiania,	434	
Christiansand,	34	
Copenhagen,	44	
Drontheim,	75	
Fiume,	195	
Hamburg,	93	
Helsingfors,	343	
Rotterdam,	440	
Trieste,	147	
Manure —		
Genoa,	102 t.	
Ochre —		
Hamburg,	25 cks.	
Painters' Colours —		
Amsterdam,	2 cks.	
Antwerp, 280 pks. 44	1 cs.	19 dms.
Bergen,	1	
Bremen,	2	2 15 pkgs.
Christiania,	2	1 40 32
Christiansund,	24	
Copenhagen,	7	4
Drontheim,	17	156 158
Genoa,	39	
Gothenburg,	1	
Hamburg,	13	1
Helsingfors,	1	
Konigsberg,	32	
Leghorn,	12	
Lilau,	1	
Naples,	15	
Rotterdam,	20	2 4
Riga,	11	
Stettin,	5	
Trieste,	76	
Wasa,	7	
Pitch —		
Antwerp,	85 t.	
Helsingfors,	45 cks.	
Naples,	220	
Salt —		
Hango,	200 bls.	10 cks
Size —		
Flushing,	28 cks.	
Soap —		
Drontheim,	10 cs. 8 bls.	
Stearine —		
Wasa,	14 cks.	
Tallow —		
Flushing,	56 cks.	
Wasa,	62	
Tar —		
Abo,	30 cks.	
Christiania,	5	
Copenhagen,	6	
Helsingfors,	35	
Uleaborg,	5	
Wasa,	30	
Varnish —		
Antwerp,	4 cs.	
Bremen,	3 bls.	
Christiania,	1 cks.	
Copenhagen,	2	7
Hamburg,	3	
Naples,	9	1
Stettin,	1	
Drontheim,	1	

GLASGOW.

Week ending September 7th.

Ammonium Sulphate —		
Hamburg,	75 t.	£986
Demerara,	49	9½ c 692
Charente,	130	4¼ 1,950
Nantes,	67	4 860
Asbestos —		
Hamburg,	3½ c.	£34
Bleaching Powder —		
Calcutta,	75 t. 13 c.	£780
Borax —		
Hamburg,	10 cks.	£140
Coal Products —		
Creosote		
Bordeaux,	427 t. 13 c.	£580
Creosote Oil		
Stockholm,	10 bls.	£4. 10s.
Pitch		
Boston,	83 t. 17 c	£116
Gothenburg,	75	11¼ 200
Pitch and Tar Oil		
Gothenburg,	14 t. 10 c.	£28
Tar		
Boston,	22 t. 13 c.	£56
Christiania,	2	4 7
Hamburg,	50 bls.	1 453 cks. 596
Calcutta,	30	
Stockholm,	10	£4. 10s.
Barbadoes,	1 t. 7	15
Tar Oil		
Hamburg,	24 cks.	£13

Cottonseed Oil —		
Rotterdam,	29 bls.	£122
Linseed Oil —		
Barbadoes,	3 t.	£87. 14s
Demerara,	250 glns.	26 12
Magnesium Sulphate —		
Rio de Janeiro,	10 t.	£60
Christiania,	5	15
Manganese —		
Rotterdam,	1 t. 11 c.	£15
Manure —		
Jamaica,	10 t.	£100
Paint —		
Japan,	3 t	£50
Barbadoes,	3 13¾ c.	87
Peru,	43	
Trinidad,	90	
Calcutta,	7 t. 5¼	111
Cuba,	9	188
New York,	7	
Painters' Colours —		
Hong Kong,	3 t. 19¾ c.	£65
Demerara,	51	
Paraffin Wax —		
Nantes,	1 t 19¾ c.	£56
Phosphoric Acid —		
Trinidad,	1 t 18 c.	£30 15s.
Potash Salts —		
Chili,	3 t. 7½ c.	£309
Potassium Bichromate —		
Hamburg,	4 cks.	£60
Calcutta,	10 c.	23
Gothenburg,	11 t. 3¼	203
Amsterdam,	15 cks.	175
Rotterdam,	1	20
Soap —		
Barbadoes,	4 cks.	£28
Trinidad,	6 t. 19¾ c.	113
Hamburg,	3¼	5
Sulphur —		
Trinidad,	£23. 15s.	
Superphosphate —		
Stettin,	1,077 t. 9 c	£4,050
Tallow —		
Christiania,	1 c.	£3
Amsterdam,	1 t 4	30
Varnish —		
Christiania,	1 t.	£3
White Lead —		
Hong Kong,	2 t.	£42

TYNE.

Week ending September 2nd.

Alkali —		
Hamburg,	7 t. 1 c.	
Christiania,	1	3
Rotterdam,	3	13
St. Petersburg,	20	3
Calmar,	88	6
Amsterdam,	29	14
Ammonia Alkali —		
Horsens,	5 t.	
Ammonium Carbonate —		
Montreal,	2 t.	
Ammonium Chloride —		
St. Petersburg,	8 t. 5 c.	
Anthracene —		
Rotterdam,	41 t. 10 c.	
Antimony —		
Gothenburg,	1 t.	
Antwerp,	5	
Hamburg,	2	10 c.
Stockholm,	1	
Barium Carbonate —		
Hamburg,	102 t. 13 c.	
St. Petersburg,	12	15
Barium Chloride —		
St. Petersburg,	5 t. 9 c.	
Bleaching Powder —		
Antwerp,	10 t. 2 c.	
Hamburg,	10	4
Trieste,	3	4
Venice,	6	10
Rotterdam,	21	19
St. Petersburg,	50	19
Montreal,	42	3
Drontheim,	10	
Copenhagen,	9	17
Gefle,	30	
Leghorn,	7	1
Naples,	2	16
Amsterdam,	24	6
Caustic Soda —		
Antwerp,	2 t. 2 c.	
Hamburg,	73	9
Trieste,	21	9
Venice,	2	18

Montreal,	39	8
Stockholm,	4	19
Naples,	23	4
Amsterdam,	21	6
Colours —		
Genoa,	1 t. 3 c.	
Iron Oxide —		
Antwerp,	2 t. 12 c.	
Hamburg,	4	10
Litharge —		
Gothenburg,	10 c.	
Hamburg,	1 t. 8	
Rotterdam,	2	11
Copenhagen,	2	13
Stockholm,	3	3
Magnesia —		
Hamburg,	4 c.	
St. Petersburg,	6	5 t.
Naples,	6	
Ochre —		
Christiania,	6 t. 6 c.	
Paint —		
Antwerp,	15 c.	
Hamburg,	10	
Copenhagen,	10	
Naples,	3	
Soda —		
Gothenburg,	5 t	
Christiania,	23	1 c.
Bergen,	5	18
Trieste,	55	2
Rotterdam,	19	19
Ergastiria,	11	
Gefle,	29	13
Soda Ash —		
Christiania,	6 t. 10 c.	
Venice,	30	3
Horsens,	2	14
Rotterdam,	5	6
Calmar,	80	
Gefle,	5	6
Naples,	15	10
Sodium Silicate —		
Helgenoes,	331 t. 12 c.	
Sulphur —		
Hamburg,	100 t	
Christiania,	50	
Gothenburg,	45	
Superphosphate —		
Fredrikshavn,	58 t 14 c.	
Stettin,	528	7
Tallow —		
Hamburg,	11 c.	
Tar —		
Vadso,	3 t. 7 c.	
Varnish —		
Antwerp,	22 lbs.	
White Lead —		
Gothenburg,	72 t. 19	5 c.
St. Petersburg,	86	4
Montreal,	1	19
Copenhagen,	1	4

GOOLE.

Week ending August 30th.

Chemicals (otherwise undescribed)		
Antwerp,	1 ck.	
Rotterdam,	2	
Coal Products (otherwise undes.)		
Antwerp,	80 cks.	
Rotterdam,	26	
Dye-stuffs (otherwise undescribed)		
Boulogne,	6 cks.	4 pkgs.
Ghent,	27	
Rotterdam,	47	
Manure —		
Boulogne,	52 bgs.	
Hamburg,	460	
Pitch —		
Antwerp,	250 t.	

GRIMSBY.

Week ending September 2nd.

Chemicals (otherwise undescribed)		
Antwerp,	6 cks.	
Dieppe,	2	4 pkgs.
Hamburg,	34	6 cs.
Coal Products (otherwise undes.)		
Dieppe,	160 cks.	
Manure —		
Esbjerg,	636 t.	

PRICES CURRENT.

WEDNESDAY, SEPTEMBER 13th

PREPARED BY MESSRS. HIGGINBOTTOM AND CO., 116, PORTLAND STREET, MANCHESTER.

*The values stated are F.O.R. at maker's works, or at usual ports of shipment in U.K. The price in different localities may***Acids:—**

Acids:—		£	s.	d.	
Acetic, 25 % and 40 %	per cwt.	7/-	&	10/6	
Glacial	"			50/-	
Arsenic S.G., 2000°	"	0	14	6	
Fluoric	per lb.	0	0	3 3/4	
Muriatic (Tower Salts), 30° Tw.	per bottle	0	0	10	
" (Cylinder), 30° Tw.	"	0	3	0	
Nitric 80° Tw.	per lb.	0	0	1 3/4	
Nitrous	"	0	0	1 3/4	
Oxalic	nett	"	0	3	
Phosphoric, 1750°	"	0	1	2 1/2	
Picric	"	0	1	0	
Sulphuric (fuming 50 %)	per ton	15	10	0	
" (monohydrate)	"	5	10	0	
" (Pyrites, 168°)	"	3	0	0	
" " 150°	"	1	5	0	
" (free from arsenic, 145°)	"	1	6	0	
Sulphurous (solution) S.G. 1025	"	3	0	0	
Tannic (pure)	per lb.	0	1	2	
Tartaric	"	0	0	11 1/2	
Arsenic, white powdered	nett per ton	13	10	0	
Alum (loose lump)	"	5	2	6	
Alumina Sulphate (pure)	"	5	0	0	
Aluminoferrous	"	2	10	0	
Aluminium	per lb.	0	4	0	
Ammonia, Anhydrous	"	0	1	2	
" 880=28°	per lb.	0	0	3	
" =24°	"	0	0	2 1/4	
" Carbonate	nett	"	0	3 3/4	
" Muriate	per ton	23	10	0	
" (sal-ammoniac) 1st & 2nd	per cwt.	37/-	&	35/-	
" Nitrate	per ton	42	0	0	
" Phosphate	per lb.	0	0	10 1/2	
" Sulphate (grey) London	per ton	14	15	0	
" (grey) Hull	"	14	15	0	
Aniline Oil (pure)	per lb.	0	0	5 1/2	
Aniline Salt	"	0	0	5 1/4	
Antimony	per ton	45	10	0	
" (tartar emetic)	per lb.	0	1	0	
" (golden sulphide)	"	0	0	10	
Barium Chloride	per ton	7	10	0	
" Carbonate (native)	"	3	10	0	
" Sulphate (native levigated)	"	45/-	to	75/-	
Bleaching Powder, 35 %	nett	"	8	10	0
" Liquor, 7 %	"	3	10	0	
Bisulphide of Carbon	"	11	15	0	
Chromium Acetate (crystal)	per lb.	0	0	6	
Calcium Chloride	per ton	2	5	0	
China Clay (at Runcorn) in bulk	"	17/6	to	35/-	

Coal Tar Products and Dyes:—

Alizarine (artificial) 20 %	net per lb.	0	0	8
Magenta	"	0	3	9
Anthracene, 30 % A, f.o.b. London	per unit per cwt.	0	1	2
Benzol, 90 % nominal	per gallon	0	1	5
50/90	"	0	1	5
Carbolic Acid (crystallised 40°)	per lb.	0	0	6 1/2
(crude 60°)	per gallon	0	1	6
Creosote (ordinary)	"	0	0	1
(filtered for Lucigen light)	"	0	0	1 1/4
Crude Naphtha 30 % @ 120° C.	"	0	0	8
Grease Oils, 22° Tw.	per ton	2	5	0
Pitch, f.o.b. Liverpool or Garston	"	1	5	0
Solvent Naphtha, 90 % at 160°	per gallon	0	1	0
" Lucigen " and " Wells " Oils	"	0	0	1 1/2
Copper	per ton	43	2	6
Sulphate	"	15	15	0
Oxide (copper scales)	"	40	0	0
Glycerine (crude)	"	13	0	0
(distilled S.G. 1250°)	"	43	0	0
Iodine	nett, per oz.	0	0	9
Iron Sulphate (copperas)	per ton	1	12	6
Sulphide (antimony slag)	"	2	0	0
Lead (sheet) for cash	"	11	2	6
Litharge Flake (ex ship)	"	13	0	0
Acetate (white)	"	25	15	0
brown	"	17	10	0
Carbonate (white lead) pure	"	20	0	0
Nitrate	"	20	0	0

Lime, Acetate (brown)	per ton	6	0
(grey)	"	10	0
Magnesium (ribbon and wire)	per oz.	0	2
Chloride (ex ship)	per ton	2	7
Carbonate	per cwt.	1	17
Hydrate	per ton	17	0
Sulphate (Epsom Salts)	per ton	2	19
Manganese, Sulphate	"	17	15
Borate	per cwt.	2	12
Ore, 70 %	per ton	4	5
Methylated Spirit, 61° O.P.	per gallon	0	2
Naphtha (Wood), Solvent	"	0	3
Miscible, 60° O.P.	"	0	4
Oils:—			
Cotton-seed	per ton	23	0
Linseed	"	22	10
Lubricating, Scotch, 80°—80 1/2°	"	7	5
Petroleum, Russian	per gall	0	0
American	"	0	0
Potassium (metal)	per oz.	0	3
Bichromate	nett per lb.	0	0
Carbonate, 90 % (ex ship)	per ton	16	15
Chlorate	per lb.	0	0
Cyanide, 98 %	"	0	2
Hydrate (Caustic Potash) 80/85 %	per ton	21	10
(Caustic Potash) 75/80 %	"	20	10
(Caustic Potash) 70/75 %	"	20	0
Nitrate (refined)	per cwt.	1	2
Permanganate	per cwt.	3	5
Prussiate Yellow	per lb.	0	0
Sulphate, 90 % (ex ship)	per ton	9	15
Muriate, 80 % (do.)	"	8	0
Silver (metal)	per oz.	0	2
Nitrate	"	0	2
Sodium (metal)	per lb.	0	3
Carb. (refined Soda-ash) 48 %	nett per ton	5	10
(Caustic Soda-ash) 48 %	"	4	10
(Carb. Soda-ash) 48 %	"	4	10
(Carb. Soda-ash) 58 %	"	4	10
(Soda Crystals)	"	2	17
Acetate (ex-ship)	"	16	0
Arseniate, 45 %	"	12	0
Chlorate	per lb.	0	0
Borate (Borax)	net, per ton	28	10
Bichromate	per lb.	0	0
Hydrate (77 % Caustic Soda) (f.o.b.) net pr. ton lots	"	11	10
(74 % Caustic Soda)	"	11	5
(70 % Caustic Soda)	"	10	5
(60 % Caustic Soda)	"	9	5
(60 % Caustic Soda, cream) (f.o.b.)	"	9	0
Bicarbonate	"	7	0
Hyposulphite	"	6	10
Manganate, 30 %	"	16	0
Nitrate (95 %) ex-ship Liverpool	per cwt.	0	9
Nitrite, 98 %	per ton	29	0
Phosphate	"	15	0
Prussiate	per lb.	0	0
Silicate (glass)	per ton	5	7
(liquid, 100° Tw.)	"	4	5
Stannate, 40 %	per cwt.	3	0
Sulphate (Salt-cake)	per ton	1	4
(Glauber's Salts)	"	1	10
Sulphide	"	8	10
Sulphite	"	5	15
Strontium Hydrate, 100 %	"	8	10
Sulphocyanide Ammonium, 95 %	per lb.	0	0
Barium, 95 %	"	0	0
Potassium	"	0	0
Sulphur (Flowers)	per ton	8	0
(Roll Brimstone)	"	6	10
Brimstone: Best Quality	"	4	2
Superphosphate of Lime (26 %)	"	2	7
Tallow	"	27	10
Tin (English Ingots)	"	86	0
Crystals	per lb.	0	0
Zinc (Spelter)	per ton	17	7
Chloride (solution, 96° Tw.)	"	5	15

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Notices.

Communications for the *Chemical Trade Journal* should be sent to the Editor, and Cheques and Post Office Orders made payable to—

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Our Registered Telegraphic Address is—

"Expert, Manchester."

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Communications for the Editor, if intended for insertion in the next week's issue, should reach the office not later than **Tuesday** evening.

Subscribers are invited to forward items of intelligence, or cuttings from newspapers, of interest to the trades concerned.

Reports, and correspondence on all matters of interest to the chemical and allied industries, home and foreign, are solicited. Contributors should condense their matter as much as possible, on one side only of the paper, and in all cases give their names and addresses, not necessarily for publication. Sketches should be on separate sheets.

Advertisements.

Advertisements of Situations Vacant, Premises on Sale or To be Let, and Specific Articles for Sale by Private Contract are taken in the *Chemical Trade Journal* at the following rates:—

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Advertisements intended for insertion in the current week's issue should reach the office by **Wednesday morning** at the latest.

CURRENT TOPICS.

OIL ON TROUBLED WATERS (?).

CAN it be that twelve editions of a "second Daniel" have suddenly arisen in the Metropolis, or have juries returned verdicts of death by misadventure on those who have succumbed to the injuries received through upsetting paraffin lamps *ad nauseum*? Quite a startling departure was made this week by a London jury. They appended a rider. In fact they seemed quite upset about the position of affairs. Oil which should help to tranquillise matters turned the tables on this occasion, and was the cause of all the trouble. But oil itself will be in the troubled waters ere long unless it is circumspect. It has earned a bad name for itself already, because it is made responsible for the shortcomings of others. But we anticipate.

Five persons having been either suffocated or burned to death during a fire which occurred at a shop where petroleum was stored, and the cause having been as far as can be learnt purely accidental, the deaths had to be returned as accidental too, with the addition of this perspicuous rider, "the jury are strongly of opinion that the London County Council or some other authority, should have the control of all shops where stores of paraffin are kept." There were other items of equally instructive information in the rider, but this is enough for the nonce. Are we to infer that such places are not under control? That the conditions regarding storage set forth in the Petroleum Acts are not duly recognised?

The London County Council have, unless we mistake, inspectors to enforce these Acts, but we notice that in the opinion of one of these inspectors no explosive oil comes into London, so that perhaps the Acts are null and void now, and the inspectors, of course, might be abolished. But this cautious body, having, as it has, such a strong inclination to gravitate towards grandmotherly local government, cannot surely be behind Manchester in affording protection against such a dangerous commodity as petroleum. If this be so, it is little short of a miracle that some timorous member has not been awestruck with the almost incessant reports of accidents which appear day by day in the papers, and directed attention to this matter. We should fancy, however, that the sagacious suggestions of the well-meaning jury will be lost upon such an advanced body as the London County Council.

They may not, however, be lost upon the general public, and the London correspondent of a prominent provincial paper has thought fit to improve the shining hour, and apprise the public of the magnitude of this evil. This he successfully does by means of the information that of the claims under £5 which are made in considerable numbers upon fire insurance companies, over fifty per cent. of such claims are due to lamp accidents. This is a noteworthy fact. But after this there is a digression in which the would-be informant has evidently got into strange waters. Whilst chronicling the existence of a rumour, (which by-the-by took definite shape over nine months ago), to the effect that an attempt is

to be made to "get up a scare over the alleged exceedingly dangerous character of cheap oils," so as to assist the Scottish mineral oil trade, it is stated that it was owing to the introduction of foreign oil that the Scotch trade was all but extinguished. Be this as it may, it ought also to be stated that owing to this identical inception a considerable number of lives have been "extinguished" altogether. The champion of the public welfare seems suddenly to change front. The dangers are only alleged. The allegations must be fairly weighty when in the opinion of one of the largest foreign oil companies "the pernicious laxity of the Government" in allowing such doubtful oils to enter the country "suggests a semi-barbarous rather than a highly civilised race." And this in the nineteenth century.

To dispose of the advantages which it is supposed would accrue to the Scottish trade if the flashing point were raised, it may be said that it is very doubtful if it would materially lessen the competition from abroad, as the oil used abroad has to be of a high flash point, and the increased cost of sending similar oil to this country would make barely any difference in the price. But we have more to learn yet from the same source. We read, that on what is believed to be reliable authority, assurance has been given that there is no difference as regards safety between the cheap and the dear oil, and, in fact, the dearer is if anything the more explosive of the two; a statement which, if authentic, will have much more to do with the decline of the Scotch oil trade than all the foreign competition imaginable. But we believe in all verity upon the assurance of the reliable testimony afforded above; that seeing the Scotch trade is likely to assume the aggressive, someone of the opposite faction has been hopelessly hocussing and using as an instrument, an otherwise well meaning but unwitting advocate. We can only add incidentally that while among the poor, who presumably use the cheap oil, accidents are as plentiful as ever, if not more so, there is a dearth of fatalities with the dear and dangerous oil, which has of late been used, and is being used, to no small extent among the well-to-do.

THE MERSEY AND IRWELL JOINT COMMITTEE.

Despite all the kind things which have been said about this Committee, the past week has shown that in the execution of its self-imposed and pretentious task, it can be quite as energetic as suits the taste of a great many. Though only showing its teeth at present, the same convey with conviction the fact that there is some bite as well as bark in the young dog. There is now new food for reflection for those who without diffidence dilate upon the dilatory dealings of the Committee. The proceedings last Monday give outsiders an insight into some of the difficulties of dealing with only thirty-seven of the more important polluters. While none are anxious to move, there is even ignorance of the nature of the pollution which the conduct of a dye-works entails. To carry conviction in one case, a gentleman had to be invited to stimulate his olfactory nerves with the bottled-up nastiness of his own effluent. When informed that the "something of which it smelt strongly" was sulphuretted hydrogen gas he wanted to know what that was, and even Sir H. Roscoe, after trying to demonstrate what it was, did not feel that his efforts had been attended with great success. Unfortunately he could not adopt the means of demonstration which we know to have been adopted some years ago to convince the sceptical members of a Local Board in the South of the noxious nature of this gas. The owner of a new, and then unique, sewer ventilator, on appearing before the Board, set in active operation an extemporised Kipp's apparatus charged with

ferrous sulphide and acid, with the result that at even preliminary stage of the demonstration the Board promptly adjourned till the next meeting, conclusively convinced of objectionableness of the gas, and disposed to think with blessings of the apparatus that could quell the stink which had assailed them in their Board-room. As we have unfortunately this method could not be adopted last Monday otherwise when the Committee re-assembled, despite assiduity, we fear it would have been a case of "Oh, what a falling off was there," and a large proportion of the work would have had to be adjourned.

As it was only six were treated in this way, and these, four on account of the peculiar circumstances attending, and two because something was already being done. We read a lot about what ought to be done, and we shall be pardoned if we transgress in suggesting that those who are so energetic on paper just reflect for a moment or two, and call to mind when at any time in the past it could be said that forty manufacturers had works in operation, thirty-seven had been taken to task in the matter and allowed three months to set themselves in order, while one refractory polluter had, by his attempting to dilly-dally still longer, brought himself into unpleasantly close proximity with the Local Government Board.

There is plenty still to be done, much more than we shall like to see, and time presses, but time is not stayed if the work lightened by those who preach perfection, forget of the fact that

"Whoever thinks a faultless piece to see
Thinks what ne'er was, nor is, nor e'er shall be."

EXPORTS OF ALKALI AND BLEACH.

THE following figures, which are taken from the official foreign colonial statistics of the United Kingdom, give the amount value of alkali and bleaching materials shipped to the undermentioned countries during the month of July, 1893, as compared with same month in 1892:—

ALKALI.

Port.	1892.	1893.	1892.	1893.
	Cwts.	Cwts.	£	1893.
Russia	30,558	39,862	13,946	15
Sweden and Norway	5,268	6,500	1,803	1
Germany	10,797	12,638	4,509	4
Holland	2,074	5,987	701	1
France	2,132	2,800	805	1
Spain and Canaries	9,956	21,203	4,780	9
Italy	16,826	16,020	7,736	5
United States	195,501	149,182	67,739	46
Australasia	12,478	15,095	4,688	5
British North America ..	21,212	12,625	7,345	3
Other countries	57,017	70,656	22,848	25
Total	363,819	352,568	136,900	120

BLEACHING POWDER, ETC.

Port.	1892.	1893.	1892.	1893.
	Cwts.	Cwts.	£	1893.
United States	58,052	69,052	23,795	29
Other countries	48,948	53,926	17,643	21
Total	107,000	122,978	41,438	50

RUST PREVENTING ENAMEL.—An enamel for ironwork prevents rusting is being introduced by Messrs. Fletcher, Russell & Co. Ltd., of Warrington, under the title of Chimatto Enamel. It does chip off, most artistic colours and shades can be obtained, and stand heat up to about 1000° C., as it is being used by the firm to ornament and protect their well-known gas burners, stoves and heaters. It can be applied to all kinds of decorative ironwork.

Official Memoranda.

(From the Board of Trade Journal.)

IRON ECONOMY IN BY-PRODUCTS OF COKE.

THE increase in the exports of iron and steel from Germany, the United States Consul-General at Frankfurt draws to the general economy of Germany in connection with the use of iron and steel, more particularly through the extensive use of the Basic process. Further, he says that, equally and not less important in the general economy of iron manufacture are the more recent improvements in cokemaking, by which the by-products—ammonia, tar, and tar oils, from which are benzol and anthracene, &c.—are saved from the waste that attends the ordinary coke process.

The special field Germany is now so far in advance of other countries in that some understanding of the methods employed is

of great record of any practical interest in the saving of ammonia from the coking process appears in a paper which was read at a convention of ironmasters at Dusseldorf by one F. W. Lurman.

The main principles involved were clearly stated, but the apparatus was so elaborate and expensive, and the financial results so doubtful, that progress was for a long time slow and

The improved methods now in use, and which have produced the best results, are mainly the work of the past five years. Known as the Semet-Solvay system is the one principally in use in Belgium; but the most advanced representative of Germany in this direction is probably the Otto-Hoffman coke oven, of which there are about 1,550 now in use—535 in Westphalia, 700 in the Saar district, and 240 in Austria. Although elaborate in construction, this oven is durable, and by reason of its saving in gas, highly economical in operation, aside from its saving in the subsidiary products. The complete apparatus consists of the Otto oven (32 feet long, 16 inches wide, and 4 feet high) with the Siemens regenerator in such manner that the air for the combustion of gases is first heated to a temperature of 800° F.

In the most economical service these ovens are built in groups of 60, and half the number are alternately filled each 48 hours. Each has three openings, through which it is charged from above with tons of air-dried coal. The openings being then tightly closed, gas is applied, and the gases generated are drawn off through pipes by the action of a suction fan into coolers and condensers, where the tar and ammonia are deposited in water. The purified gas of tar and ammonia, is then reconducted to the Otto ovens, where it is mingled with the heated air above and burned as fuel in the process of roasting the coal. The amount of gas produced varies somewhat with the quality of coal, but with all the German coals the gas thus generated is greatly in excess of what is required for heating the ovens, and the surplus is used for making steam, lighting, and for other purposes.

The gas, after being scrubbed, charged with the heat that has been absorbed from the gas, is subjected to heat, which converts the ammonia, the same being converted into sulphate of ammonia.

The tar, by reason of its gravity, settles to the bottom of the condenser and is easily separated. It is more valuable than the tar from the ordinary manufacture of illuminating gas, on account of its containing a larger percentage of benzol and anthracene. For a long time it has been a common notion among German ironmasters that the coke-making process that saved the by-products was thereby injured, but this is now completely dispelled. The coke made by this process is conceded to be of the highest quality for all

purposes, and the product from good air-dried coal containing 17 per cent. of water is about 76 per cent. of coke, 1.15 per cent. of sulphate of ammonia, and from 2.5 to 4 per cent. of gas. The following is a résumé of the actual work of a battery of 60 ovens rating with local coal in the three principal mining districts of Germany.

1. Product of coal produces—

of Ruhr, coke, 1,672 pounds; tar, 60.5 pounds; sulphate of ammonia, 25.3 pounds. Silesia, coke, 1,496 pounds; tar, 93.5 pounds; sulphate of ammonia, 26.4 pounds. Saar, coke, 1,540 pounds; tar, 91.3 pounds; sulphate of ammonia, 18.7 pounds.

2. Product of 60 ovens is—

of Ruhr, coke, 51,300 tons; tar, 1,860 tons; sulphate of ammonia, 780 tons. Silesia, coke, 48,000 tons; tar, 3,000 tons; sulphate of ammonia, 800 tons. Saar, coke, 40,500 tons; tar, 2,400 tons; sulphate of ammonia, 492 tons.

3. Consumption, and surplus of gas for one oven per 24 hours follows:—

District of Ruhr, production, 32,000 cubic ft.; consumption, 19,200 cubic ft.; surplus, 12,800 cubic ft. Upper Silesia, production, 36,800 cubic ft.; consumption, 20,800; surplus, 16,000 cubic ft. Saar, production, 32,000 cubic ft.; consumption, 19,200; surplus, 12,800 cubic ft.

So that a battery of 60 ovens, working under the above conditions, would furnish gas for their own heating and yield a surplus of from 76,000 to 96,000 cubic feet per day to be used for other purposes. It is reckoned in practice that 100 cubic metres (3,200 cubic feet) of this surplus coke-gas is equivalent, for purposes of heating, to 87.5 kilos. (193.5 lbs.) of coal; and the saving of fuel in working sixty coke ovens would therefore be—

Ruhr, 21,000 kilos. per day, 7,560 tons per year; Silesia, 22,250 and 9,450; Saar, 21,000 and 7,560.

But, since the Otto-Hoffman oven involves also, the use of the other appliances which require heat to the extent of one-third the amount saved in the form of gas, it follows that the actual economy in fuel is about two-thirds of the above totals expressed in coal. Add to this saving of coal the two by-products—sulphate of ammonia, worth in the market 11s. 3d. per cwt., and tar, worth about 2s. per cwt., and the enormous profits which are claimed for this system do not appear incredible.

From another, but trustworthy source, it is announced that the revenue actually derived from the tar and ammonia produced by one year's working of a group of 60 ovens in Westphalia, which cost in construction £34,580 (or £576. each), was £8,375., or about 25 per cent. on the capital invested in the plant. The price given above does not include the cost of condensing apparatus, which, although it is not a part of the oven, is worked in connection with it.

It should not be understood from the foregoing that the Otto-Hoffman is the only highly-approved coke oven in Germany which saves the secondary products. There are, in fact, several others of later construction for which their inventors claim certain points of superiority over the Otto, but the latter has been the longest in use and is therefore the best known. From the known aggregate product of tar and ammonia, it is calculated that there are at present in operation not less than 3,000 coke ovens which save the subsidiary products, so that the 1,550 Otto ovens in operation are something more than half the entire number of all kinds in actual use.

A comparison of the results obtained by the Semet-Solvay system in Belgium, with those realised by the best German ovens, shows a clear advantage in favour of the latter. In the Semet ovens an intense degree of heat is generated, so that it is not found necessary to combine them with regenerators to heat the air which is to be used in combustion. They are therefore considerably cheaper in construction; but, on the other hand, the Semet acquires for good results a special mixture of "fat" and "lean" coal that is not always easy to provide, and while the coke thus made is of a high and uniform quality, it produces much less ammonia, tar, and gas, than the best German ovens, and is therefore in the end less profitable.

The direct production of benzol in the coking process is difficult, but it has been successfully accomplished during the past year by an inventor at Dortmund, whose process is thus far a secret. So far as can be ascertained, from 6½ lbs. to 15 lbs. of benzol are obtained from a ton of dry coal. The effect of the 3,000 improved coke ovens now in use in Germany and Austria has been to greatly increase the supply and reduce the market values of the by-products which they secure. Sulphate of ammonia, which, besides its use as a fertiliser, is largely employed in making ice and in soda manufacture, was in 1883 worth 16s. per cwt., but now sells for about 11s. 3d.; and tar has declined from 3s. per cwt. to 2s. in the same period. Notwithstanding this decline, the profits derived from these two subsidiary products of coke manufacture are stated by good authorities to be as high as 40 per cent. all of which goes to the credit side in the general account of Germany's mining and metal industries.

But this is not all. Still another point in which the Germans secure an important advantage, especially as respects their American competitors, is in economising the waste and coarser forms of fuel. It is conceded that Americans are masters of economy in labour, but they are extravagant with materials, millions of tons of coal dust—the waste of mines, railways, and iron mills—are thrown away as useless. An official commission, after exhaustive study of the subject, has recently published the astounding information that for every ton of anthracite coal mined and marketed in Pennsylvania, 1½ tons are wasted; and the loss in bituminous coal, although somewhat less, is still enormous. In Germany, France, and Belgium all this refuse coal dust is carefully saved. Part of it is mixed with pitch derived from tar distillation and moulded into "bricquettes," which are used as fuel for locomotives, stationary engines, and household grates. The remainder of this finely pulverised carbon is blown by jets of live steam into various kinds of furnaces, where it burns with almost the fierceness of crude petroleum. Coal dust from mines costs in Germany 1s. per ton on cars, or in large quantities 10s. per car-load of 10 tons, and the care with which it is saved and utilised adds an important percentage to the

fuel supply of this country. It is by this application of scientific economy to every stage of manufacture, the saving of secondary products, and the invention of new processes and machinery to work most advantageously native materials that the German iron and steel makers have been able to face without disaster the declining metal markets of the past four years.

PRODUCTION OF RUBBER IN COLUMBIA.

The proper season for the collection of rubber in the Caquetá district of Columbia is the summer, that is, from October to March, for during the other months the forests are completely under water. It is the custom of rubber-gatherers on the Amazon during the winter to take up their quarters along the river banks, cutting wood for steamboats, dye-wood, etc. Those of Caquetá might spend the same time in preparing land for cacao and other products suitable for their own use. The quantity of cauchó that each labourer can get depends upon the locality selected, and upon the degree of its exploration beforehand. The lower part of the Caquetá territory is similar in conditions of climate and vegetation to the banks of the tributaries of the Amazon flowing from the south, whence comes the rubber exported from Pará. It is not known why the same qualities of rubber are not found in the Caquetá district; I do not, however, assert that they will not yet be discovered, for there has never been a thorough exploration of the lower part of this district adjacent to the Amazon.

To undertake the exploration of the cauchó-forests of the Caquetá district, it will be advantageous to take there labourers acquainted with the soil and climate of the Amazon valley, for the Indians of this locality are of no present use in rubber-gathering. It would be necessary to establish storehouses with provisions and tools at the mouths of the rivers Caquetá and Putumayo, and to keep at each of these places, in active service, a steamboat drawing about $2\frac{1}{2}$ feet of water, and able to transport from 40 to 50 tons of freight. These vessels will be found serviceable in looking after the labourers; also in furnishing supplies, and in collecting the cauchó at different stations where rubber-gathering is in operation. When the Indians, through commercial and religious influences, have been induced to work for themselves and for others, they undoubtedly will be able to obtain greater quantities of cauchó on account of their natural acquaintance with the forests.

In order to establish the rubber industry successfully in Caquetá, it will be necessary to make a beginning at the same time in agriculture, in order to provide for the maintenance of the labourers. At present provisions would have to be brought from Manáos or Pará, entailing heavy cost of transportation, besides damages to goods on account of the distance and the climate. As above stated, steamboats and canoes can be made to serve for transportation on the rivers, while the labourers can carry on their backs all the provisions they need as far into the forests as they may go in search of the gum.

THE MANUFACTURE OF ESSENCE OF ROSES.

The Belgian Consul at Leipzig, in a recent report to his Government, mentions an interesting fact in connection with the manufacture of oil of ether in Saxony, which is that the rose plantations established two years ago as an experiment in the suburbs of Leipzig, have given such brilliant results that they have been largely extended.

The rose trees withstood the long and severe winter of 1892-93, and their development has left nothing to be desired. It is a mistake to suppose that these flowers in order to thrive and acquire a delicate perfume require eastern warmth. It has been proved to the contrary at Leipzig that a fresh and even a slightly moist temperature is the first condition of a good yield, and that great heat is the enemy of roses.

The house which first tried these plantations has built a special factory in the midst of the rose fields, which was to commence working this summer. It will consume each day 50,000 kilogrammes of leaves, and will produce as a minimum about 40 kilogrammes of oil, rose-water, and pomade of roses, of an estimated value of from £2,000. to £2,500.

This factory is to have three boilers to commence with, and the roses will, immediately after gathering, be transferred into the macerating receptacles, where, by means of this process, they yield their perfume with all their freshness and delicacy. Only that quantity of flowers which is immediately wanted will be gathered. The rose will therefore be only a few minutes in passing from the tree into the machines.

Nowhere else has this important fact been noted, it often happens in Turkey, for example, and also in France, that roses gathered in the morning are only distilled in the evening.

As regards the oil of roses produced in Saxony during the past year, it is asserted that not only is it in no way inferior to that of Turkey, but further, that it is superior to its rival as regards delicacy and length, and in the length of time that the perfume lasts.

PETROLEUM AS A BOILER DISINCRUSTANT.

The *Journal des Mines* states that the officials of the Prussian State Railways have for several years been making use of petroleum in order to remove the incrustations in the boilers of locomotives and fixed machinery. These trials have been so satisfactory that petroleum is now used in every case where the incrustations are not too hard and impermeable. Petroleum is used after washing the boiler and after the compartments of the latter are completely dried; the petroleum is applied with the aid of brushes or injected by means of a pump. On some occasions an attempt has been made to make use of petroleum before the water in the boiler has been removed. In this case the petroleum spreads uniformly over the whole service of the water, and when the water is allowed to run out slowly the petroleum fixes itself regularly in the porous incrustations, which absorb it.

CONSUMPTION OF HORSEFLESH IN GERMANY.

Her Majesty's Consul at Mannheim reports that the consumption of horseflesh in Germany is everywhere on the increase, and especially in the cities. In 1892 in Berlin 8,182 horses were slaughtered for the butchers' shops, in Breslau, 3,431; in Hamburg, 1,727; Dresden, 1,428; Cologne, 1,415; Hanover, 1,400; Magdeburg, 1,193; Leipzig, 1,053. In proportion to their smaller population the figures for some of the towns are rather considerable. Of course by far the greater part of the horseflesh is consumed by the poorer classes and in the "People's Kitchens" that aim at supplying the masses with a savoury and substantial meal at the lowest price.

AUSTRIAN SALT FOR BRITISH INDIA.

Her Majesty's Consul at Trieste, in a report to the Foreign Office, states that the Union Bank at Trieste, aided by the Austrian Lloyd's Steamship Company (the new administration of which, it is asserted, is continually striving to develop the trade of Austria), after due inquiries has decided to attempt an export trade in salt to British India from Trieste, or more correctly, from Pirano, near Trieste.

The first cargo as a test cargo was despatched for Calcutta on the 10th August, and upon the result of this experiment will depend the continuation of the enterprise.

The principal condition is that the quality may agree with the East Indian demand, and, if this can be arranged, Austria will participate with England, Germany, and Italy in the salt trade to British India, the magnitude of which to Calcutta alone is very great.

COST OF PATENTS IN RUSSIA.

The following information respecting the granting of patents in Russia is extracted from a memorandum prepared by her Majesty's Consul at St. Petersburg:—

(1.) The Crown dues for a patent in Russia are:

For one of 3 years' duration 90 roubles (about £9).

" 5 " 150 " (" £15).

" 10 " 450 " (" £45).

(2.) The above sums are payable in full on application, and the money may be sent either direct to the Department of Trade and Manufactures or lodged with a provincial treasury, which will then issue a certificate to the effect that the sum due for a patent has been received by it on deposit and on account of the above department, by which, it should be observed, all patents are granted. Such certificate must accompany the petition praying for a grant of patent. To the petition must also be attached a detailed specification and drawings of the invention for which a patent is asked, and, moreover, each sheet of the petition and drawing must have attached to it a Russian revenue stamp of 80 copecks (about 1s. 7d.), and a similar stamp must be provided for the reply of the department.

Correspondence.

* * We do not hold ourselves responsible for the opinions expressed by our correspondents.

ANSWERS TO CORRESPONDENTS.

W. S. C. AND Co.—Try J. Berkley, 8, Livery Street, Birmingham. Kindly remember your source of information when writing.

F. H.—In answer to your query as to the books suitable for a Paper Work's Laboratory we should advise first the *Chemical Trade Journal*, then Cross and Bevan's "Paper making," (E. & F. N. Spon), Thorpe's Quantitative Analyses, (Longmans), and Thorpe's Inorganic Chemistry, (metals), (W. Collins and Sons, Ltd.).

S. S. H.—*Vid.* No. 306 of the Journal.

W. BROS.—It has been sent.

ENAMEL.—We are purposing to deal with this subject at no very distant date.

Parliamentary Jottings.

THE ROYAL COMMISSION ON AGRICULTURE.

ON the 14th inst., a Commission was appointed to inquire into (1) the agricultural depression prevailing in Great Britain, and (2) whether it can be alleviated by legislative or other measures. The members of the Commission are as follows:—Mr. G. Shaw-Lefevre, M.P. (chairman), Viscount Cobham, Lord Vernon, Mr. Henry Chaplin, M.P., Sir N. Kingscote, K.C.B., Mr. R. Giffen, C.B., Mr. C. I. Elton, Q.C., Mr. C. N. Dalton, Mr. F. A. Channing, M.P., Mr. John Clay, Mr. R. L. Everett, M.P., Mr. John Gilmour, Mr. G. Lambert, M.P., Mr. W. C. Little, Mr. Walter Long, M.P., Captain Owen Thomas, Mr. Charles Whitehead, F.L.S.

FERTILIZERS AND FEEDING STUFFS BILL.

In the House of Commons, on Friday last week, the Lord's amendments to this bill were considered and agreed to.

THE SULPHUR INDUSTRY OF SICILY.

AN exhaustive report of the British Vice-Consul at Palermo on the production of and trade in Sicilian sulphur has recently been issued by the Foreign Office. Sulphur has, it appears, been extracted in Sicily to some extent for centuries, but it is only within the last 60 or 70 years that the industry has come into general and active operation. The quantity of ore extracted in 1891 was, according to the *Times*, more than 2,500,000 tons; and the mineral obtained from this was 347,568 tons, of which 310,272 tons were exported. When compared with the production and exportation of 1830, which was 38,461 tons, it will be seen that the development attained was very great, but it must be remembered that Sicily is really the only sulphur-producing country in the world, the few thousand tons exported by Japan not affecting Sicily in any way. The number of mines in 1891 was 818, of which 581 were working and 237 closed. The men finding work in and about the mines were 32,269, not including carters, drivers, carriers, storekeepers, &c., who are all directly or indirectly engaged in the trade. The total is roughly given at 50,000. The persons working the mines in Sicily are generally termed "esercenti," and are divided into three classes—viz., owners, leaseholders, and contractors. Some proprietors work their mines themselves, while others lease them on what are called "gabellie," and sometimes the proprietors and the leaseholders have their mines worked by "partitanti," or contractors. The "gabellia" of a sulphur mine has all the forms of a special contract, whereby the proprietor grants to the leaseholder, at the entire cost and charge of the latter, the working of a mine for a given number of years under determined conditions, the main one being that the owner shall have, free of all expense and at his choice, a certain proportion, 20 per cent. on an average, known as the "gabellia" or rent, of the mineral produced. The "partito" is a verbal agreement without a definite limit of time, lasting until one of the parties recedes from it or proposes a change. By this verbal agreement the working of a mine or part of a mine, the fusion of the ore, the cost of labour, maintenance, etc., are undertaken by a foreman workman for a fixed compensation in money for every 264 lb. yielded. As a general rule the methods of working the mines are still very primitive, for when the proprietors work the mines themselves they generally contract with a "partitante" and endeavour to get the greatest output at the least cost; the "partitante" is thus precluded from vesting money in plant and machinery, and if the owners are of the patrician class and live away from their estates these contracts are managed by their local agents. The system of the "gabellia" is preferred all round, for the "gabellotto" is enterprising and thoroughly acquainted with the mine and its resources, with the miners and their habits and exactions, and he possesses all the qualifications for managing a mine, except capital; hence he has recourse to a money-lender, or to a speculator who lends the money at exorbitant interest. The greater part of the ore at the various mines is still fused by the old method of "calcaroni," or open kilns, owing to the cost of their construction being much less than the adoption of other methods, but the loss of sulphur caused by the escaping fumes is very great. Improved systems are in use in most of the mines with which English companies are connected. Refining is carried on at Catania. There are seven refineries. The largest is capable of turning out 48 tons of refined sulphur in 24 hours, 2,000 tons of flour of sulphur during a season, and of milling 3,000 half-hundredweight bags of sulphur per day. The refining season commences in October and terminates in June. There seems to be a steady decline in the exports to the United Kingdom, due to the manufacture of sulphuric acid by means of Messrs. Chance's process, but it is thought in Sicily that there is no ground for fearing that any reductions in exports will be caused thereby, Chance's process being still looked upon as of doubtful financial profit, though its success scientifically is undoubted. Another diminution is observable in the exports to the United States, where pyrites have also taken the place of sulphur in

chemical and other works. The Vice-Consul concludes by describing the working of one of the most important and best managed of the mines—viz., Grottacalda, situated at about 7 kiloms. from the town of Valguarnera, and 21 kiloms. from the nearest railway station of Assaro. It belongs to Prince Sant' Elia, and is at present leased to and worked by Messrs. J. Trehwella and Co. It produces about 15,000 tons of sulphur yearly, of which 22 per cent. is made over to the proprietor as rent. The extreme depth is 140 metres. There are three shafts besides various "scala" or stairs leading into the mine. At the main shaft the ore is drawn to the surface by a 60-horse power horizontal winding engine, the cage containing a tram waggon with about 15 cwt. of ore at a time. The ore is extracted from the two smaller shafts by modern steam winches of 8 to 10-horse power. There are three horizontal Lancashire boilers, each having 30 square metres of superficial heating surface, and two vertical boilers for driving the steam winches. The amount of water is about 1,000 cubic metres in 24 hours, and is extracted by a double acting vertical beam pump (Cornish pattern) working in three lifts; the length of stroke is three metres, diameter of plunger 30 centims., speed of pump six strokes per minute; besides this there are three Worthington pumps in reserve in case of accidents. The quantity of ore brought to the surface in 24 hours is about 300 tons. The ore yields about 3½ cwt. of fused sulphur per ton. There are about 150 miners and 250 boys employed underground, divided into three shifts, besides an underground engineer and several foremen. The sulphur, when fused, is taken to the railway station by carts, 50 of which are regularly employed, and at times these are increased to 100; each cart takes about 14 cwt. of sulphur.

THE MERSEY AND IRWELL JOINT COMMITTEE.

POLLUTION BY PRINTERS AND DYERS.

A special meeting of the committee was held on Monday last, at the offices, Mosley-street, Manchester, under the presidency of Mr. Alderman J. Thompson, to hear the reasons to be given by the following dyers and printers why proceedings should not be taken against them for polluting the rivers within the jurisdiction of the Committee:—*Printworks*: Turnbull and Stockdale, Bacup; T. G. Stark, Ramsbottom; J. Jackson, Harpurhey; Irkdale Printing Company, Collyhurst; T. Hoyle and Sons, Manchester; F. W. Ashton and Co., Hyde; and Gibson and Costabadie, Broadbottom, Glossop. *Dyeworks*: Gill and Hartley, Glazebrook, Leigh; Thomas Taylor, Bolton; Byrom Dyeing Company, Rawtenstall; R. Rintoul, Rochdale; M. Stuttard Brothers, Rochdale; R. Pendlebury and Sons, Radcliffe; Gorton and Halliday, Middleton; Mather, Ormesher, and Co., Middleton; Parker, Lord, and Co., Middleton; Whittaker and Harwood, Crumpsall; J. Mellor and Sons, Crumpsall; F. Cawley and Co., Blackley; J. Lancaster, Harpurhey; W. Hall and Co., Newton Heath; J. Walton, Collyhurst-road, Manchester; Horrocks-lane Dyeing Company, Manchester; Henry Cochrane, Newton Heath; Kerr and Hoegger, Newton Heath; W. H. Wagstaffe and Co., West Gorton; S. Neave and Sons, Bollington; R. Ashworth and Sons, Middleton; W. and J. Hilton, Whitefield; C. Heywood, Whitefield; Chadwick and Smith, Middleton; Booth and Co., Middleton; E. Ashworth and Son, Egerton, Bolton; Dickens and Heywood, Middleton; Ancoats Vale Printing and Dyeing Company; J. L. Kennedy and Co., Stalybridge; J. Rothwell, Kearsley; Peter Reid and Sons, Pendleton; Langworthy Brothers, Salford.

In all, thirty-nine firms were to appear, but owing to a misunderstanding about the day two firms did not attend. The pollution in one of these cases, however, is of a trifling and intermittent nature. Sir Henry Roscoe, M.P., was present in person at the meeting, and advised the Committee. He gave particulars in certain cases where the pollution was exceptional. He mentioned the case of the Irkdale Printing Co., whose effluent was exceptionally bad, containing 4½ oz. of total solids per gallon. He was of the opinion that this effluent could be treated at a reasonable expense. Again, the Horrocks Lane Dyeing Co., on the assumption that they turned out 100,000 gallons a day, were putting into the river two tons of decomposing material per diem. There was half a pound of solid matter per gallon, mostly in solution.

Mr. Kerr, of Messrs. Kerr and Hoegger, Newton Heath, wanted to know what was a "satisfactory effluent."

Sir H. Roscoe remarked that there should be no solids in the effluent, and at present there were 218 grains per gallon.

In all twenty-five manufacturers were allotted three months in which to prepare settling tanks, &c., before further compulsory measures were taken. In two cases a period of two months was allowed for the formulation of a scheme. In one case the effluent was being disposed of satisfactorily. Two were granted one month, as they were already doing something, and in one case it was decided to apply to the Local Government Board for permission to take proceedings at once. Six other cases were adjourned to the next meeting owing to the peculiar circumstances of the cases.

THE GAS SUPPLY OF LONDON.

THE quality of the gas supplied to the City of London for the week ending September 9th, 1893, was practically faultless. According to the report of Mr. W. J. Dibdin, chemist and superintendent gas examiner to the London County Council, the tests made at the various testing stations showed one deficiency in illuminating power, and that against the Gas Light and Coke Co., the test showing 15·8 candles. The following figures have been prepared from the report, and show the average composition of the gas calculated on the mean test :—

Company.	No. of districts tested.	Illuminating power (in stand. sperm candles).	Sulphur. Grains in 100 cb. ft.	Ammonia. Grains in 100 cb. ft.	Sulphuretted hydrogen.
		Mean average.	Mean average.	Mean average.	
Gas Light and Coke Co.	14	16·4	9·64	0·37	Nil.
South Metropolitan Gas Co.	6	16·68	10·33	0·65	Nil.
Commercial Gas Co. ..	2	16·60	8·15	0·45	Nil.

The standard gas supplied by these companies should have an illuminating power of 16 sperm candles, and contain not more than 22 grains of sulphur and 4 grains of ammonia per 100 cub. ft. of gas, on an average of three days, with a pressure of one inch between sunset and midnight, and six-tenths of an inch between midnight and sunset.

THE BRITISH ASSOCIATION.

ON Wednesday, the 13th inst., the annual meeting of the British Association was opened at Nottingham, under the presidency of Dr. Burdon Sanderson, who gave a lengthy and abstruse address on "Biology: its history, aims, and relations to physiology." He also set forth the connection which this science has to its two neighbours, natural philosophy (including chemistry) and psychology. Of great interest was his treatment of phototaxis and chemotaxis, or the behaviour of the bacteria attracted by light (*Bacterium Photometricum*) and the bacteria which seek after oxygen; the plasmodia investigated by Mr. A. Lister being instanced to exemplify what the President termed the chemical allurements of living protoplasm.

THE CHEMICAL SECTION.

The chemical section was presided over by Professor J. Emerson Reynolds, who, in his address, after touching upon some of the important advances of the past year, proceeded to advocate the more extensive use of earlier records, or rather the means for enabling such records to be more readily made use of, and so save investigators a great deal of unnecessary work. He then dealt with the attempts which have been made to explain the interaction of the molecules of the elements by the aid of Newton's laws of gravitation. Leaving "Newtonian Chemistry," Professor Reynolds next drew attention to the tendency during later years to neglect specialization in favour of the general study of physico-chemical problems.

Under the title of "Comparative Chemistry," he dealt at great length and in a most interesting manner with some of the latest efforts which have been made to solve the mysterious yet definite changes which are familiar to chemists under the name of "chemical action."

Among inquiries of that kind the comparative study of the elements carbon and silicon appeared to him to possess the highest interest. Carbon, whether combined with hydrogen, oxygen, or nitrogen, or with all three, was the great element of organic nature, while silicon, in union with oxygen and various metals, not only formed about one-third of the solid crust of the earth, but was unquestionably the most important element of inorganic nature. The chief functions of carbon were those which were performed at comparatively low temperatures; hence carbon was essentially the element of the present epoch. On the other hand, the activities of silicon were most marked at very high temperatures; hence it was the element whose chief work in nature was performed in the distant past, when the temperature of the earth was far beyond that at which the carbon compounds of organic life could exist. Yet between these dominant elements of widely different epochs, remarkably close analogies were traceable, and the characteristic differences observed in their relations with other elements were just those which enabled each to play its part effectively under the conditions which promoted its greatest activity. Much remained to be done in this department of comparative chemistry, but they might fairly claim to have established the fact that silicon, like carbon, could be made to form perfectly defined compounds in which it was exclusively united with the triad nitrogen of amidic and imidic groups.

In conclusion, it seemed to him that while the sedimentary strata contain remains which come down to us from the very dawn of life on this globe, the rocks from whose partial disintegration the preserving strata resulted contain mineral records which carry us still further back,

even to nature's earliest efforts in building up compounds similar to those suited for the purposes of organic development.

Sir H. Roscoe and Prof. Clowes respectively moved and seconded a vote of thanks, in acknowledging which the President said that there was one point he might mention. The title of their section was properly "Chemistry and mineralogy," and in the fear that the latter subject had been left sadly out in the cold, he had purposely built his address on organic chemistry.

Papers were then read by Dr. Gladstone on "Ancient Metal Ornaments and Tools." Mr. T. Turner on the "Native Iron Manufacture of Bengal," and Mr. G. J. Fowler on "Nitride of Iron."

According to the author, the best way of preparing iron nitride is as follows:—Iron is reduced from the hydrate by hydrogen, in a tube of such dimensions that it could be weighed, together with its contents, and thus the end of the reaction determined without exposing the iron to the air. When complete reduction has been effected, the iron is heated in a fairly rapid current of ammonia gas until no further increase in weight is observed. The temperature should be kept a little above the melting-point of lead. The product obtained when the reaction was complete was analysed thus:—The nitrogen was determined by dissolving the substance in hydrochloric acid, evaporating with platinum chloride, and weighing the ammonium platinum chloride obtained. The hydrogen given off on solution of the substance in sulphuric acid was measured. The iron was determined by ignition and weighing as oxide, and by solution in sulphuric acid and titration with permanganate of potash. The results obtained compared well, on the whole, with those of Stahlschmidt, and confirmed his conclusion that only one nitride of iron existed. Reports were also presented on the "Analysis of Iron and Steel," and "The Silent Discharge of Electricity."

On Friday, one of the most interesting features of the meeting took place, namely, the demonstration by Dr. Meslans, on behalf of H. M. Moissan, of the properties of Fluorine. It is some six years now since M. Moissan announced that he had isolated Fluorine. The costliness of the apparatus and difficulties attending the work has so far prevented other chemists confirming the results which have been obtained by M. Moissan. In obtaining this element in the gaseous state, the apparatus employed consists entirely of platinum and fluorspar. A powerful current of electricity is passed between platinum electrodes through perfectly dry liquid hydrogen fluoride mixed with one of its salts, and cooled to a very low temperature by means of methyl chloride. Under these conditions fluorine is given off from one of the electrodes, and hydrogen gas from the other. The gas is almost colourless, and its presence is made evident by its action on various compounds. Crystallized silicon, amorphous boron, phosphorus, sulphur, and various metals take fire at the ordinary temperature and burn brilliantly in a current of the gas. These phenomena were exhibited to the section, and the demonstration was in every way successful, a telegram being sent to M. Moissan, congratulating him on the great success of the demonstration. Various papers were then read, and reports presented on the "Formation of Haloids," "The Action of Light on the Hydracids of the Halogens in the presence of Oxygen." Professor J. Hummel also read the report of the committee on the "Action of Light on Dyed Colours." In the evening a lecture was given in the Albert Hall, by Professor Smithells, of Leeds, on "Flame."

On Saturday the Chemical Section did not sit, but a lecture was given at the Tabernacle by Prof. Vivian Lewes, on "Spontaneous Combustion."

A most interesting portion of the sights to be seen, is the exhibition of physical apparatus, which is shown by several well known scientific instrument makers. Mention may be made of a Tromometer for registering the intensity of earth tremors, concerning which Professor Milne is doing special work in Japan. Among pyrometers and high temperature thermometers we noticed Callender's platinum pyrometer. Mercury thermometers up to a red heat, by Dr. B. Müncke, the mercury being prevented from boiling by being contained in a tube charged with carbon dioxide under a pressure of 20 atmospheres. Also the Chorley and Baly thermometer, composed of an alloy of potassium and sodium, and registering up to 600°C.; a high resistance galvanometer for physiological work; a magnetic curve tracer; an apparatus for projecting solids on a screen, and the Koniscope and pocket dust counter, designed by Mr. J. Aitken last year.

On Monday the chief item was a discussion, opened by Professor Frankland, on the "Present Position of Bacteriology." He said:—Amongst the researches most important from a practical point of view were those of the Danish chemist Hansen on pure cultivations of yeast, which hitherto had been less valued in this country than on the Continent and in America. Pure yeasts were used in 18 breweries in Europe, but not by one in England. This was probably due to the fact that until recently the pure yeasts were not capable of producing the after-fermentation which was required in the English methods of brewing, but since this drawback had been removed by Van Laer, it is probable that they will come into use,* and some experiments have

* According to A. G. Salamon one brewery is using pure yeast, cultivated solely on Hansen's method and quite independently of Van Laer's modification.—Ed. C. T. J.

been made at Burton-on-Trent by Mr. Horace Brown. Mentations produced by bacteria, as distinct from those by yeasts, were of constantly increasing importance, afforded means of splitting up certain compounds and new products that could not be obtained in any other way reason of their selective action and their tendency to attack compounds in preference to others present in the same mixture enabled us to separate substances of identical chemical composition, but different physical properties, which could not yet be done in any other way. In connection with the relation between bacteriology and public health, Professor Frankland referred to investigations of himself and others on the purification of drinking waters by filtration, and precipitation. He pointed out that great attention prevailed as to the real value of water analyses, the object of which was to show whether a water was liable to become a source of danger at any time and not whether it was actually dangerous at the present moment. Recent methods had, however, made it possible to detect the special bacteria of typhoid and cholera when present in drinking water. Contrary to the common belief, bacteria could retain their vitality in ordinary water for weeks, whilst the spores were destroyed for months, but different species varied in this respect. Professor Burdon Sanderson and others took part in the discussion, and a vote of thanks was moved by Dr. Tilden and seconded by Mr. W. H. Harcourt.

Mr. Warrington read a paper on the three bacteria that were found in water—namely, one that has the power of producing nitrates, another which reduces nitrates, and a third, only recently discovered, that had the power of absorbing nitrogen from the air. It was to the latter that the presence of nitrogen in soils on which leguminous crops were raised was attributed.

EXPORTS AND IMPORTS FOR AUGUST.

Board of Trade returns for August are better than they were expected to be. It is noteworthy that the imports of raw beet-sugar this month are much less than those of last year.

IMPORTS OF FOREIGN AND COLONIAL PRODUCE.

		Quantities.	
		1892.	1893.
rine	Cwt.	99,894	102,382
ore and regulus	Tons.	17,995	14,803
—dry and wet	Cwt.	76,957	90,085
of soda	Tons.	5,568	10,498
and stearine	Cwt.	126,131	156,381
.....	Cwt.	67,660	45,395

EXPORTS OF BRITISH AND IRISH MANUFACTURES.

	Quantities.	
	1892.	1893.
..... Cwt.	500,228	447,034
..... Tons.	43,032	36,948
nd Coke Tons.	3,115,490	2,368,968
r—all kinds Cwt	115,913	83,730
nd steel Tons.	259,625	281,832
cal manures Tons.	40,959	48,505
seed Tons.	4,679	4,934
..... Tons.	72,879	61,429

THE PITTSBURG REDUCTION COMPANY.

works of this company at Kensington, Pittsburgh, U.S.A., for the manufacture of aluminium are well known for the amount and of the metal which they produce.

Attention was made in these columns recently of the fact that this company was erecting a new plant at Niagara Falls, for which the Niagara Falls Power Company had contracted to supply 6,500 E.H.P.; following particulars of the company's works at Kensington without interest:—

The works occupy seven acres. There are two buildings of iron, 175 feet long, and the other 175 feet long, each having a 70-foot high roof. The power plant consists, according to the *American Manufacturer*, of batteries of Babcock and Wilcox water tube boilers of 1,000 horse-power capacity. These are fed by Roney automatic the coal being automatically unloaded from the cars directly at the power room. Coal at this point is very cheap, and this is probably the most economic steam plants in the world. While under the same management as the rest of the aluminium producing equipment, the

boiler room is separated from the rest by a heavy fire-brick wall, through which the steam is conducted to the five Westinghouse compound engines which furnish the power. These engines are connected to large dynamos which give considerably more than a thousand E.H.P. The dynamos are arranged in parallel to furnish two separate currents to the two sets of pots, the pots of each set being arranged in series. These reducing pots are of iron lined with carbon, which forms the negative electrode. Into the pots dip a number of large carbon rods, forming the positive electrodes. These rods are suspended by heavy copper conductors. In the pots, surrounding the carbon rods, is the fluoride bath of flux, in which is dissolved the oxide of aluminium which is to be reduced. The current performs the double service of melting the flux and reducing the ore. The carbon of the rods forming the positive electrodes being gradually dissolved (provision for this loss is made by lowering these rods) carbonic acid gas is given off at the positive electrodes. The pure aluminium is dipped out of the pots and cast into pigs or ingots, to be afterwards remelted. There are about dozen of these pots in use.

At one end of the aluminium producing shop is an additional building in which is a series of melting holes, such as are to be found in brass foundries, for remelting the metal and casting it into various shapes. A speciality is made of aluminium castings, and a large portion of the output is sold in this form, several moulders being constantly engaged in this work.

An additional building, 100 by 70 feet, has recently been erected, in which the foundations are being rapidly brought to completion for a mill for rolling sheets and bars of aluminium. The equipment will embrace the latest improvements, and no cost will be spared to make this, the first rolling mill ever built expressly for rolling aluminium, equal in every respect to the best rolling mill equipment for any metal in existence to-day. Aluminium, brass, or aluminium bronze may be handled in this mill. A wire-drawing plant will also be installed, and it is intended to furnish the metal to the trade in ingots, castings, sheets, bars, or wire.

The present capacity of the works for the production of aluminium is about a ton a day, and another enlargement has been decided upon. Plans for this are being rapidly completed. The company will shortly put up works for the production of its own alumina from the crude bauxite, and for this purpose has purchased a further tract of some eight acres in Kensington from the Burrell Improvement Company, and will soon commence operations in a large chemical works erected on this property for the manufacture of alumina.

Trade Notes.

A TEMPTING TITLE.—*Cream* (of the World's Fact, Fun, and Fancy) is the title of a new weekly penny paper, which, under the editorship of Mr. Francis George Heath will shortly appear. It will not, as it might at first appear, be devoted to the interests of dairymen, but it is intended to be a *bon bouche* for the bibliophile.

THE SODIUM NITRATE COMBINE.—At a meeting of the Permanent Nitrate Committee on Tuesday, it was agreed to send to the directorate of the Nitrate Combination in Iquique a telegram to the effect that the English companies are opposed to any restriction of the production or exports of nitrate of soda after the 31st of March next.

THE ST. HELENS WATER-SOFTENING WORKS.—At a recent meeting of the St. Helens Town Council, enquiries were made concerning the working of the water-softening process at Thatto Heath. It was explained that the works were operating satisfactorily. The water at the Town Hall showed the hardness was reduced to 10.8°. It is intended to still further soften the water, and to test samples at the Town Hall every week.

DISCOVERY OF COAL AT BRAMHALL.—The Freeholders' Company have for about fifteen months past, in conjunction with Lord Newton of Lyme, been boring in search of coal on their estate at Bramhall. It was reported at a special meeting of directors on Tuesday, by Mr. Worthington, the company's steward, that a seam of coal 2 ft. thick had been passed through at a depth of 1,497 feet. The locality of the boring is within 150 yards of Hazel Grove station, and west of what is known as the "great fault" of Cheshire.

ENGINEERING CLASSES.—The Manchester Municipal Technical School has issued a prospectus of the Engineering, Mathematical, and Machine drawing classes, to be held at this school during the present session, and we have pleasure in directing the attention of apprentices and students to them. The Engineering and Wood-Working Shops are well fitted with Hand and Machine Tools, suitable for a systematic and complete course in Fitting, Turning, Screw-Cutting Drilling, Boring, Moulding, Pattern Making, Smith's Work, and the instruction in Practical Work will be found of especial service to Draughtsmen, and to Mechanics who are restricted to one class of tool or department of the shop.

COATING ALUMINIUM WITH ZINC.—To effect the coating of aluminium with metallic zinc, the metal is first cleaned and then immersed in a boiling solution containing a mixture of cyanides of silver and mercury. It is next dipped in an electrolytic bath of zinc chloride and sodium sulphate, when it receives a coating of zinc, thus protecting it from the corrosive action of acids. This method is the subject of a recent patent.

FIRE AT A SALT WORKS.—On Wednesday morning last, a large and destructive fire occurred at the Middlewich Dairy and Domestic Salt Company's works. The Middlewich and Sandbach fire brigades attended, but they were unable to subdue the flames, which raged with great fury until the works were practically destroyed. The conflagration created much excitement, and was witnessed by immense crowds of people.

PRODUCING HYDROGEN.—The production of hydrogen is a matter which interests all lead burners. A patent relating to this matter has for its object the cheapening of the production of this gas from spelter in the machine. It proposes to combine clean iron and steel scrap with a protecting body, such as zinc, and mould the same into blocks. The method employed consists in compressing the scrap in moulds which are heated, and then pouring molten zinc over the heated scrap so as to bind the whole into a mass on cooling.

PERSONAL.—At the recent technological examination of the City and Guilds Institute, held at the Technical School, *Mr. W. H. Clayton* a student in the Saturday afternoon (dyeing and printing) course of applied chemistry, was bracketed second in the Honours Grade examination in calico printing, and was awarded a medal. *Mr. W. W. Wilson* (now at the printworks of Messrs. Schwabe and Co.), who obtained the first place in the same examination, was a student in the chemistry and applied chemistry classes at the Owens College during the sessions 1891-2 and 1892-3.

THE CLOSING OF A DERBYSHIRE LEAD MINE.—The shareholders of the Rake Head lead mine at Bradwell, have decided to dispose of all the plant, the mine not having been worked to any extent for some time. This is one of the oldest mines in the district, and has been prosperous for hundreds of years. A number of men have worked at the place since the closing of all the other mines in the neighbourhood, and now this is closed there is not a single lead mine in the locality working. The tramways in the workings are now being pulled up so that the material may be sold.

MESSRS. PILKINGTON'S FIRE.—William Martindale and Richard Mills, colliers, were charged at St. Helens last week with assaulting the police and obstructing them in the execution of their duties on the occasion of the great conflagration at Pilkington's Glass Works on the previous Saturday night. The evidence showed that the defendants and others obstructed the policemen and firemen, threw stones at the officers, and attempted to push them into the canal. The police officers were struck and kicked. The magistrates referred to the seriousness of the offence, and committed each defendant for two months' imprisonment.

PRICE'S PATENT CANDLE COMPANY, LIMITED.—The statement submitted to an extraordinary general meeting of Price's Patent Candle Company, Limited, on the 22nd inst., says that the balance of profits in hand shown by the accounts laid before the general meeting in March was £48,762., from which has been deducted—Dividend 12s. 6d. per share paid 21st March, £23,437.; reserve fund, £5,000.; on account of depreciation on fixed properties, £12,500.; leaving a balance of £7,825. The manufacturing profit of the six months to 30th June last was £30,865., or less income tax, £30,013. The dividend declared at the meeting was 10s. per share, leaving in hand to be carried forward, £19,088.

THE UNITED ALKALI COMPANY AND THEIR WATER.—Recently a claim was made against the St. Helens Corporation by the United Alkali Co., Ltd., for compensation for the partial stoppage of several of their works in July last owing to the shortness of the water supply. Mr. Wyld, on behalf of the company, said there was every reason to believe the stoppage might have been prevented with a little care, or even by giving notice that one of the pumping stations was not working. The Water Engineer explained the situation at the time, and Alderman D. Gamble suggested that in future they should ask the works when they wanted an extra supply to give notice of it. It was decided that this should be done.

MURIATIC ACID FOR WHISKY.—Whisky is reported to be not unfrequently used as a "wash down" by bleach packers, and as an antidote to the corrosive action which hydrochloric acid gas has upon the teeth of those working in an atmosphere of the same; but a Leytonstone builder, one J. J. Cox by name, reversed the order of affairs recently. At the inquest held by the Essex Coroner, it was stated that on a Sunday morning the deceased drank a quantity of spirits of salts from a bottle, which he thought contained whisky. On finding out the mistake he had made he informed his wife, who procured medical assistance, and the deceased was removed to the West

Ham Hospital, but died from the effects of the poison. The jury returned a verdict that death was due to the deceased having tently swallowed the poison.

THE OLDHAM SEWAGE WORKS.—The first sod of these works was cut on Monday, 18th instant, by the Mayor of Oldham (Ald. The works are situated in the Slack's Valley, at Chadderton, and the scheme, it is anticipated, will cost close on £200,000. He said it was important that the works should be constructed, as otherwise under the pressure of the Mersey and Irwell Joint Committee's report, a corporation would have been involved in a costly litigation. The works would receive by gravitation all the sewage of Oldham, with the exception of that coming from about 102 acres situated at the end of Hollinwood. It was intended to lift the sewage from the main sewer to the intercepting sewer by means of Shone's ejectors placed in a chamber beneath the roadway. These ejectors, worked by the power of compressed air, and by a very simple arrangement the sewage in the Manchester-road sewer would be made to compress the sewage in the intercepting sewer, thus obtaining the requisite power with little expense. There was another point which was worthy of notice, that was that in the construction of these works there would be no valves that could be used to divert the sewage from their present treatment. This was a point that the Mersey and Irwell Joint Committee would look upon with considerable favour, as it was a thoroughly honest endeavour on their part to purify the streams

Market Reports.

TAR AND AMMONIA PRODUCTS.

Manufacturers would wish purchasers to believe that there is no life in the tar products market, but the true situation may be seen without change. It is true that the pitch market looks healthy, but that there has been a fair demand so far for crude carbolic acid and other products remain under a cloud, and what is more disappalling still, we are rapidly drifting into cold weather and longer nights, stimulants to the production of increasing quantities. 1s. 5d. to 1s. 6d. are to-day's quotations for 90's and 50's/90's benzol. Anthracene without change.

The sulphate of ammonia market is still quiet, and no amount of offers on the part of sellers will induce either speculators or consumers to purchase against their will. The dealers are endeavouring to the utmost to force back prices to what they were before the recent fall, and, as usually happens, makers are apt to become panic-stricken so as to aid in producing the very results they are most anxious to avoid. There is no doubt that the dealers, one and all, have been smitten, and if they possibly can, will screw their losses out of the producers. Forward business has been done only to a very slight extent at the quoted prices, and quotations from November to March are nominally £13. 2s. 6d., with but few sellers so far. The dealers have oversold themselves at low prices, without visible supplies, not yet "out of the wood," some of the contracts they have running till next March.

REPORT ON MANURE MATERIAL.

During the week the business done has been on a very modest scale, prices required being for the most part above buyers' bid values.

Sales of 75/80% Florida phosphate rock have been made for shipment at the equivalent of 8½d., c.i.f. to good U.K. ports, but the close it is doubtful whether offers at this price would be accepted by shippers. The situation in South Carolina is practically unchanged and prices quoted for this description of rock must be considered as nominal. More attention has had for the present to be turned to Peace River rock, and the value of this is now fully 7½d. for any like early shipment. Continental phosphates, too, are more eagerly sought. Further sales of cargoes of River Plate bones have been made at £4. 15s., good United Kingdom ports, and only large-sized cargoes are now available at the price, shipment up to middle of November. £4. 12s. 6d. would have to be asked for on Kurrachee bones, forward shipment, delivered ex quay Liverpool. £4. 15s. for Bombay bone meal.

Nitrate of soda remains quiet, but steady. On spot the rate for good quality is 9s. 3d. per cwt., and of refined 9s. 4½d. Due cargoes are worth 8s. 10½d. ordinary quality, and 9s. 1½d. refined. Value of September-November shipments are 9s. 3d. to 9s. 4½d. for good and handy sizes.

A parcel of River Plate blood, arrived at Liverpool, has been sold at 10s. per unit, much higher prices are asked for home prepared.

CELLANEUS CHEMICAL MARKET.

generally, during the past week has been somewhat dull. Soda deliveries have been suspended by the United Alkali. Quotations, therefore, are only nominal at present, but for are still available the following prices have been paid, viz.: 77%, £12. 10s.; f.o.b. Liverpool, 74%, £12. 5s.; 70%, £10. 5s.; cream, 60%, £10., 10-ton lots and upwards also firmer. Bleach is in strong demand, and price remains makers' works, and £9. f.o.b. Liverpool and Tyne, subject on in case of fuel or salt supply being discontinued. Potash meets with more enquiry, but price remains the rather scarce at 8½d. Brown acetate of lime has £6. 10s., and grey £10. 10s. Acetate of soda steady at Potash, caustic and carbonate, is in strong request, and business doing both for early and forward delivery. d, crystal, rather easier. Sulphur steady at £4. 5s., rails, and muriatic acids in limited supply, and prices are very rate of copper sells more readily, and better prices are Nitrate of soda continues quiet, prices asked range from 4½d. per cwt. Lead salts dull and unchanged. Oxalic at 3½d. to 3¾d. per lb. White powdered arsenic is still firmly held—£13. 10s. to £13. 15s. may be taken as value ichromates slow of sale at convention prices. Ammonia a good request, and prices are firm. Muriate, £22. 10s. carbonate 3½d. per lb. Yellow prussiate of potash moves 1. per lb. The demand for chemicals used in the textile poor, owing to the general quietness which prevails.

LIVERPOOL OIL AND COLOUR MARKET.

WEDNESDAY.

Palm oil has been moving freely, sales having been satisfactory. Lagos is worth £25., soft oils £24., and 23. 5s. per ton, all transit. The tone of the market is firm. Sales firm, with moderate sales. Prices range from £32. 10s. per ton, according to quality. Linseed, though ruling steady at 22s. 3d. to 22s. 6d. per cwt. for Liverpool makes in with fairly good sales, is to-day rather quieter. As anti-week, cottonseed (Liverpool refined) has hardened in price, in active demand through the week at 22s. 6d. to 23s. 6d. owing to scarcity of supply it is to-day even dearer, and station is 23s. 3d. to 24s. per cwt. Castor oil is rather high prices as yet remain 2½d. to 2¾d. per lb. for good cutta, and 2½d. to 2¾d. for first pressure French. The tallow is undoubtedly improved, and business all round is the American having been selling at 28s. to 31s. per cwt. her dull, with a quiet business in all grades; common is 3s. 7½d. to 3s. 9d. per cwt. Spirits of turpentine show a easing-off, but are now steadier at 21s. 9d. to 22s. per cwt. well inquired for, American 4¾d. to 5¾d., according to Russian refined, 4d. per gallon.

RS are steady without alteration in prices. Oxfordshire, common, £10., medium, £12., best, £15.; common, 40s.; medium, 50s., best, 60s.; Welsh, best, 50s., and common, 18s.; Irish, Devonshire, 40s. to 45s.; J.C., 55s. to 60s.; M.C., 65s. to 67s. 6d. Umber: Devonshire, 50s. to 55s. White lead, red lead, and zinc unchanged. Venetian red, £6. 10s. to £10. Cobalt: oxide, 9s. 9d.; black, 9s.; blue, 6s. Zaffres: No. 1, 10. 2, 2s. 6d. Oxide of iron: Common, £6.; medium, £20. Zinc oxide, £23. to £25.

THE METAL MARKETS.

N, WEDNESDAY.—Pig iron dull. Scotch warrants closed d. cash, Middlesbrough 35s. 1½d. cash, and hematite 45s. dy: Chili bars, G.O.B.'s and G.M.B.'s closed at £42. 10s. 3d. cash, and £42 15s. to £43. 1s. 3d. three months. Tin its closed at £80. 10s. cash, and £80. 5s. to three months; Australian, £81. 10s.; English ingots, £85. firm: Spanish, £9. 16s. 3d. to £9. 17s. 6d.; English, £10. 2s. 6d. Silesian spelter: Ordinary, £17. 5s. 6d. Nickel, 1s. 8d. Antimony, £39. Quick silver: First 10s.; second hands, £6. 8s. 6d. Copper shares firmer. to 1½. Copiapo, 1¼ to 1½. Libiola, 2½ to 2¾. Barry, 1½ to 1¾. Rio Tinto, 13½ to 13¾. Tharsis, Namaqua, 1½ to 1¾.

WOLVERHAMPTON, WEDNESDAY.—Prices to-day again were very firm and the demand good. The continued improvement in Cleveland exercises a strengthening effect. Common bars, £5. 17s. 6d. to £6.; medium sorts, £6. 10s. to £6. 12s. 6d.; best, £7. 10s. to £8. 2s. 6d.; sheets were £7. for singles, £7. 5s. to £7. 7s. 6d. for doubles, and £8. for lattens; pigs, 45s. to 47s. 6d. for Northampton and Derbyshire, 46s. 6d. for Lincoln, and 35s. to 37s. 6d. for Staffordshire common.

GLASGOW, WEDNESDAY.—Market flat, with fair business. Scotch done at 42s. 7½d. and 42s. 6½d. cash, also at 42s. 9½d. and 42. 8½d. one month; closing with buyers at 42s. 6½d. cash, sellers ask 42s. 7d. Middlesbrough done at 35s. 2d. cash, also at 35s. 3d. 14 days; closing with buyers at 35s. 1½d. cash, sellers ask 35s. 2½d. Cumberland hematite closes with buyers at 45s. cash, sellers ask 45s. 1½d. Middlesbrough hematite closes with buyers at 43s. 3d. cash, sellers ask 43s. 6d.

TYNE CHEMICAL REPORT.

TUESDAY.

In chemicals the chief feature is the advance in price of caustic soda owing to stoppage of works in Lancashire, for 70% £10. 15s. per ton and for 76/77% £12. 5s. to £12. 10s. per ton are now quoted. Other products are practically without alteration.

Bleaching powder, softs, £8. 15s. per ton, nett; hards, £9. per ton; caustic soda, 76/77%, £12. 5s. per ton, 70%, £10. 15s. per ton; recovered sulphur, 2 cwt. bags, £4. 5s. per ton; soda ash, 48%, £4. per ton, 52%, £4. 7s. 6d. per ton, 56%, £4. 15s. per ton; alkali, 36%, £3. 15s. per ton; white alkali, 48%, £4. 15s. per ton, 50%, £5. per ton, 52%, £5. 5s. per ton; hyposulphite of soda, in 5-7 cwt. casks, £7. per ton, ditto, in 1 cwt. kegs, £7. 15s. per ton; silicate of soda, 75° Tw., £2. 15s. per ton, 100° Tw., £3. 10s. per ton, 140° Tw., £3. 17s. 6d. per ton; soda crystals, in casks, £2. 15s. per ton gross weight, in 2 cwt. bags, £2. 15s. per ton nett weight; chlorate of potash, 8½d. per lb. less 6%; pearl hardening, £3. per ton nett; pure white sulphate of alumina, £4. 2s. 6d. per ton; blanc fixe, £7. 10s. per ton; chloride of barium, £7. 10s. per ton; carbonate of alumina, £28. 15s. per ton nett; aluminate of soda, £33. 15s. per ton nett; in 5 ton lots, £28. 10s.; hydrate of barium, £10. per ton nett.

South Durham salt continues steady at 9s. 6d. per ton f.o.b. Tees nett.

Coals: Trade is firm, and, with a strong demand, full prices are being maintained. Best Northumbrian steam, 13s. per ton; small steam, 5s. to 5s. 6d. Best Durham gas coal in strong demand. Bunker coals steady, prices being 8s. for unscreened up to 12s. for best screened. Coke firm at 16s. per ton.

HULL PAINT, OIL, AND COLOUR REPORT.

TUESDAY.

OILS.—Never before within the last thirty years have complaints been so loud and general as to bad times, which to anyone conversant with events here cannot be wondered at; and, if one place above another has reason to call for Government interference in disputes between labour and capital, that place is Hull, which is watching its trade being diverted as a helpless looker on. The exports show a slight increase in linseed oil and a very large falling off in cottonseed oil, compared with same week a year ago. The shipments of the former were 1,140 cwt., against 906 cwt.; and of cotton oil 2,845 cwt., against 5,693 cwt. There was an import of 960 cwt. of tallow. The imports of turpentine show an improvement, compared with same time a year ago upon the 8 months. Linseed oil is about 5s. per ton cheaper on the spot, owing no doubt to the import of seed. Refined cotton oil has improved about 10s. per ton on the spot, which in a measure may be attributed to the comparative famine in cottonseed for an early delivery. The new crop of seed will begin to arrive in October, when oil no doubt will be better and cheaper. The prices current are—Linseed oil, spot steady, at 21s. naked; month, 20s. 3d.; October-December, worth 19s., and the same price is asked for January-April. Casks 17s. 6d., and ordinary barrels 21s. 6d. per ton extra. Refined cotton oil on the spot, 20s. 6d. naked having been paid. For next month there are buyers at 20s., and sellers ask 20s. 3d. November-April sold at 18s. Crude oil for November-April offers at 16s. 6d., with buyers at 3d. less. Refined rape oil, 24s. 6d. in casks. Olive oil unchanged and scarce. Coast cod oil, £17. to £19. 10s. per ton. Herring oil, £16. 10s. Sod oil, £15. to £17. Pine oil, £7. per ton. Anti-friction grease, from £6. Brown wool grease, £8. Engine oil, 1s. 3d. to 1s. 9d. per gallon. Cylinder oil, from 1s. to 2s. per gallon. Petroleum jellies, from 28s.

CAKES.—Linseed cakes steady at late rates. Cottons, 7s. 6d. to

10s. per ton dearer, in sympathy with the scarcity of seed on the spot, the prices being—Linseed 95% pure, £8. 12s. 6d. to £8. 15s.; ordinary, £7. 5s. to £7. 10s.; Americans, £7. 10s.; Russians, £8. 10s. Cotton cakes, £6. being generally asked; November-March, £5. Rape cakes, £4 per ton.

PAINTS.—In painters' colours, &c., the exports show a slight increase, and in chemicals a heavy decrease, compared with same week a year ago; the figures of the former being 905 packages against 957 packages, and of chemicals 1,165 packages against 2,526 packages. The prices ruling are about the same, being—Oxide of zinc, £24. per ton. White and red lead, unchanged. French ochre, 60s. per ton. Oxide of iron dry, £9. to £18. per ton. Venetian red, £6. to £10. per ton. Ready-mixed paints, in 1, 2, 4, 7, and 14lb. lever tins, from 28s. per cwt. Enamels, from 4s. 9d. dozen. Oak varnish, from 6s per gallon.

WEST OF SCOTLAND CHEMICALS.

GLASGOW, TUESDAY.

Although the local production of sulphate continues unwontedly restricted the power of maintaining the high values seems exhausted for the time, and quotations are now on the down grade. Some days ago £14. 12s. 6d. was taken for prompt, and that may be accepted as about the value to-day, but October deliveries can be arranged for at £14., and for November to March business it is said that £13. 5s. has been accepted. There is however very little business passing, whether for prompt or forward.

In paraffin and mineral oil there is no price change to record, but business continues pretty active at the reduced values—with the exception of the heavier lubricants, which are suffering specially from the coal strike dislocation of industries. Gas oils are still in active demand.

Owing to lessened production due to the fuel question caustic soda has run down in stock, causing an advance of from 5s. to 15s. In general chemicals the tone is, as a rule, quiet—no activity.

Chief prices current are:—Soda crystals £2. 15s. nett, Tyne; soda ash £3. 17s. 6d. nett, Tyne; refined alkali 48/52° £4. 15s. to £5. 5s. nett, Tyne; alum in lump £5. nett, Glasgow; caustic soda, white, 74°, £11. 5s., 70/72° £10. 5s., 60/62° £9. 5s., and cream 60/62° £9., all nett, Liverpool; bleaching powder £8. 10s. to £8. 15s. nett Tyne; salt-cake 24s.; borax, English refined, £30., and boracic acid, £37. 10s. nett, Glasgow; bicarbonate of soda, 5-cwt. casks, £6. 15s., and 1 cwt. casks £7. less 2½%, Liverpool; bichromate of potash, 4½d. nett, for Scotch and English deliveries (for export, 4½d. nett f.o.b. Glasgow); bichromate of soda, 3¾d. nett, for Scotch and English deliveries (for export, 3½d. nett, f.o.b. Glasgow); chlorate of potash 9d. less 5% Liverpool; nitrate of soda, 9s. 3d.; sulphate of ammonia, £14. 12s. 6d., prompt, f.o.b. Leith; sal ammoniac, first and second white, £37. and £35. less 2½% any port; sulphate of copper, £15. less 5% Liverpool; paraffin scale, hard and soft, 1½d. per lb.; paraffin wax 120° semi-refined 2½d.; paraffin spirit (naphtha) 4½d. a gallon; paraffin oil, burning, standard No. 1 grade, 5d. per gallon at works, for Scotch buyers (English sales ½d. to ¾d. lower); ditto (lubricating) 865° £4. 7s. 6d., 885° £4. to £5. 10s., and 890/895° £4. 15s. to £6. 10s. Week's imports of raw sugar at Greenock were 7,770 bags.

New Companies.

Hydro-Carbon Products Syndicate, Limited.—CAPITAL £50,000. in shares of £1 each. This company has been formed to acquire a patent (No. 14,832 on 1890) from Mr. Stringfellow, and to carry on any business in the interest of the company. The subscribers to the memorandum of association are:—E. H. Woods, 6, Victoria-street, London, S.W., civil engineer; E. H. Stevenson, 38, Parliament-street, London, S.W., civil engineer; J. W. Burchell, 5, The Sanctuary, London, S.W., solicitor; J. C. Hart, 6, Victoria-street, London, S.W., private secretary; J. H. Hicks, 6, Victoria-street, London, S.W., private secretary; G. H. Lean, 21, Queen Anne's Gate, London, S.W., civil engineer; N. L. Pocock, 8, West Hill, London, N., gentleman.

G. Moore & Sons, Limited.—CAPITAL £25,000. in shares of £5. each. This company has been formed to take over the business of G. Moore & Sons, of Blythe, and to carry on the business of bottle manufacturers and merchants. The subscribers to the memorandum of association are:—R. Pybus, 42, Mosley-street, Newcastle-on-Tyne, solicitor; J. H. Armstrong, 8, St. Nicholas Chambers, Newcastle-on-Tyne, accountant; J. Dent, Custom House Chambers, Newcastle-on-Tyne, shipowner; D. Moore, Blyth, Northumberland, bottle manufacturer; T. Harrison, St. Nicholas Chambers, Newcastle-on-Tyne, accountant; T. W. Lovibond, The Tyne Brewery, Newcastle-on-Tyne, brewer.

Ware Bros., Limited.—CAPITAL £35,000. in shares of £5. each. This company has been formed with a view to carrying on the business of leather manufacturers, etc., formerly carried on by Mr. Ware, at Salisbury. The subscribers to the memorandum of association are:—G. H. Ware, Elm Grove, Salisbury, leather merchant; J. G. Start, Salisbury, Wilts., leather merchant; R. Ware, Salisbury, Wilts., married woman; H. Rogers, The Grattan, Tyndall's Park, Bristol, wool merchant; W. W. Ware, Goldiery-road, Clifton, tanner; A. E. Rudge, Trerible, Ross, yeoman; F. Grist, Salisbury, Wilts., commercial traveller.

Gazette Notices.

PARTNERSHIP DISSOLVED.

G. J. SNELUS, Ennerdale Hall, Eskett, and D. A. SUTHERLAND, Whitehaven, analytical, consulting, and metallurgical chemists and assayers, Whitehaven, and Victoria Mansions, Victoria-street, Westminster, S.W., under the style of Snelus and Sutherland.

J. GREGORY and W. GREGORY, lime and cement merchants, Westbourne Bridge Wharf, Harrow-road, Paddington, W., under the style of Lee and Co.

D. S. MASTERTON and C. R. MATHER, soap manufacturers, Bradford, under the style of D. S. Masterton and Co.

BANKRUPTCY ACTS, 1883 and 1890.

Receiving Order.

PICKTHALL, WM. (trading as John Pickthall and Sons), Appold-street, E.C., hemp, flax, and paper merchant.

Adjudication.

GREEN, ERNEST, Adelaide Hotel, Adelaide-road, Haverstock Hill, N.W., late of Saffron Walden, gentleman, late cement manufacturer.

The Patent List.

This list is compiled from Official sources in the Manchester Technical Laboratory, under the immediate supervision of George E. Davies and Alfred R. Davis, who report professionally upon the value of Chemical Patents.

APPLICATIONS FOR ENGLISH LETTERS PATENT.

- Explosives. H. H. Lake. 16,609. September 4.
Obtaining Zinc from Solutions by Electrodeposition. B. Kitto and W. Muir. 16,630. September 4.
Producing Oxide of Iron for use as a Pigment. C. H. M. Lyte. 16,638. September 4.
Obtaining Chlorine. A. Vogt and A. R. Scott. 16,652. September 5.
Manufacture of White Lead. J. Vickers Walton. 16,703. September 5.
Production of Chemical Compounds. H. E. Newton. 16,708. September 5.
Apparatus for Ungumming Ramie Fibre. H. H. Lake. 16,723. Sept. 5.
Air Compressors. J. C. Peacock. 16,726. September 6.
Feeding Anti-incrustants to Boilers. B. Boyes. 16,731. September 6.
Purifying Feed-Water. J. G. Chamberlain and J. Weddell. 16,734. Sept. 6.
Humidifying and Cooling Air. W. Tattersall. 16,742. September 6.
Manufacture of Cyanides. A. Gordon and J. Gordon. 16,760. September 6.
Extraction of Naphthalene, etc., from Coal Tar. F. W. Clark. 16,769. September 6.
Pulverising, etc., Mills. G. M. Hamlyn. 16,771. September 6.
New Colouring Matters. H. E. Newton. 16,780. September 6.
Drying Cement Slurry. W. W. Hewitt and W. F. Goreham. 16,781. September 6.
Improvements in Tanning. J. D. De Joseph. 16,783. September 6.
Extracting Metals from Complex Pyrites. M. Body. 16,786. September 6.
Artificial Stone. A. Clery. 16,840. September 7.
Heating and Purifying Feed Water. G. Milne. 16,852. September 7.
Manufacture of Wood Pulp. E. Mense. 16,854. September 7.
Improvements in Refrigerating Apparatus. P. E. Hodgkin. 16,861. September 7.
Mercurial Air Pumps. G. S. Ram. 16,866. September 7.
Blowpipes. G. S. Ram. 16,867. September 7.
Manufacture of Paper. A. Yockney. 16,947. September 8.
Ventilating Sewers. J. Bannehr and W. Chattaway. 16,948. September 8.
Improvements in Refrigerators. J. Schaller. 16,971. September 9.
Extracting Vegetable Oils. W. Spindler and C. Stautz. 16,987. September 9.
Manufacture of Potassium Salicylate and Salicylic Acid. S. Marasse. 17,002. September 9.

GERMAN PATENTS period ending SEPTEMBER 16, 1893.

Specially abstracted by Dr. H. Zerener, civil engineer, the Patent Office, 20 Eichendorffstrasse, Berlin, N., for the Chemical Trade Journal. Dr. Zerener is willing to at once protest against the grant of such new Patents as may collide with the interests of subscribers.

- 12 E. 3,744. Preparation of Vanillin from Paraoxybenzaldehyde. H. Ernst, Hanover.
12 H. 13,419. Smelling Salts from Citral. Haarmann and Reimer, Holm-minden.
12 F. 6,244. Preparation of Iodo-cresols. F. Bayer and Co., Elberfeld.
12 M. 9,723. Preparation of Carbon-tetrachloride. Müller and Dubois, Rheinau, by Mannheim.
12 V. 1,979. Improvements in Filters. G. Mosovsky, Küttenberg i/Bohmen

IMPORTS OF CHEMICAL PRODUCTS

AT

THE PRINCIPAL PORTS OF THE UNITED KINGDOM.

LONDON.

Week ending September 9th.

Acetate of Lime—

U. States, 673 pkgs. Johnson & Hooper

Acetic Acid—

Holland, 129 pkgs. A. & M. Zimmermann

Alkali—

France, 230 c. Arnati & Harrison

Alum—

Germany, 12 pkgs. Ohlenschlager Brs.

Holland, 23 Magee, Taylor, & Co.

Antimony—

A. Turkey, 25 t. Quirk, Barton, & Co.

Portugal, 53 Knowles & Co.

N. Zealand, 33 James & Shakespeare

Sydney, 30 Laughland, Mackay, & Co.

Queensland, 11 L. & I. D. Jt. Co.

" 7 Major & Field

" 11 J. Livingstone

Arsenic—

Germany, 6 cks. Burgoyne & Co.

Asbestos—

France, 437 Mory & Co.

Belgium, 18 Leach & Co.

U. States, 660 Bolling & Lowe

" 65 Dewrance & Co.

Germany, 720 Beck & Pollitzer

Holland, 12 Philipps & Graves

Belgium, 45 T. Palmer

Barytes—

Belgium, 47 cks. Hemingway & Co.

Germany, 66 W. Harrison & Co.

Holland, 20 Philipps & Graves

Belgium, 19 W. Harrison & Co.

" 20 P. Jantzen

Caoutchouc—

E. Indies, 44 c. Huttenbach & Co.

" 19 Brown & Elmslie

Cape Town, 14 L. & I. D. Jt. Co.

Zanzibar, 209 " "

Germany, 25 " "

Mauritius, 74 Hammond & Co.

Rangoon, 6 Ind. & Gut. Per. Co.

U. States, 64 Prop. Bull Wf.

Ceylon, 2 Hoare, Wilson, & Co.

Zanzibar, 41 Patry & Pasteur

E. Indies, 16 Forbes, Forbes, & Co.

France, 21 L. & I. D. Jt. Co.

" 18 Prop. Bull Wf.

Chili, 7 Culverwell, Brooks, & Co.

Germany, 1 Procter Brs.

" 19 Prop. Hay's Wf.

Zanzibar, 65 Clarke & Smith

Castor Oil—

France, 12 brls. F. V. Smythe & Co.

" 12 Beresford & Co.

" 13 Leach & Co.

" 40 cks. J. T. Morton

Belgium, 12 Beresford & Co.

Caustic Potash—

France, 20 c. Carey & Sons

" 45 Petri Brs.

" 10 drs. Beresford & Co.

Chemicals (otherwise undescribed)

Germany, 8 pkgs. Philipps & Graves

" 44 A. & M. Zimmermann

" 30 T. H. Lee

Holland, 14 J. Barber & Co.

" 67 Hernu, Peron, & Co.

" 10 F. Boehm

Chloride of Lime—

France, 34 pkgs. Mead, Son, & Co.

Copperas—

Germany, 15 pkgs. B. & N. Wf. Co., Ltd.

Cream of Tartar—

Belgium, 9 pkgs. G. Ward & Sons

Spain, 3 F. & L. Sitzler

Holland, 6 W. C. Bacon & Co.

France, 8 J. Owen

" 10 W. C. Bacon & Co.

" 5 M. Ashby, Ltd.

" 2 J. L. Lyon & Co.

" 25 B. & F. Wf. Co., Ltd.

" 2 Windschuegl & Co.

Dextrine—

Germany, 100 pkgs. J. Barber & Co.

" 50 Ohlenschlager Brs.

Dyestuffs—

Annatto

France, 3 pkgs. B. & F. Wf. Co., Ltd.

Denmark, 2 R. J. Fullwood & Bland

Anthracene

Holland, 212 pkgs. Burt, Boulton, & Co.

France, 46 " "

Italy, 141 pkgs. Thames S. T. & L. Co., Ltd.

Greece, 18 pkgs. Cyprus Co.

Cochineal

Canaries, 8 pkgs. Swanston & Co.

" 49 W. M. Smith & Sons

Extracts

Norway, 1 pkge. Johnsen & Jorgensen

Denmark, 30 pkgs. A. F. White & Co.

Belgium, 40 T. H. Lee

Holland, 1 Tegner, Price, & Co.

Denmark, 4 Sorensen & Co.

Gambier

E. Indies, 898 pkgs. Brinkmann & Co.

" 252 Ross & Deering

" 4 Lewis & Peat

Indigo

E. Indies, 10 cts. J. Owen

" 11 Arbuthnot, Latham, & Co.

" 21 Benecke, Souchay & Co.

" 12 R. Von Glehn & Sons

" 10 L. & I. D. Jt. Co.

Myrabolams

E. Indies, 667 pkgs. J. Graves

" 643 Leach & Co.

Saffron

France, 1 pkge. G. Wheatley & Co.

E. Turkey, 1 L. & I. D. Jt. Co.

Shumac

Italy, 501 pkgs. C. S. Lovell

" 150 J. Graves

" 550 E. Lloyd & Co.

" 350 Beresford & Co.

" 300 Sollas & Sons

Cyprus, 800 Dunlop Brs. & Co.

Tanner's Bark

N. Zealand, 8 t. Beresford & Co.

Natal, 18 A. & W. Nesbitt

" 3 Devitt & Hett

" 24 Dyster, Nalder, & Co.

Valonia

A. Turkey, 24 t. M. D. Co.

Dyestuffs (otherwise undescribed)

Holland, 15 pkgs. J. Jonas & Co.

Cyprus, 448 Dunlop Brs. & Co.

Farina—

France, 2 pkgs. Hernu, Peron, & Co.

Holland, 50 J. Barber & Co.

" 50 J. Knill & Co.

" 50 Ohlenschlager Brs.

Belgium, 650 C. F. Webster & Co.

Flux Skimmings—

U. States, 31 pkgs. Hughes, Chemery, & Co.

French Chalk—

France, 450 Stobbs, Wilson, & Co.

Glucose—

U. States, 50 pkgs. 275 c. Pillow, Jones, & Co.

" 250 250 c. P. Windmuller & Co.

" 70 385 Union L. Co., Ltd.

" 32 200 Vokins & Co., Ltd.

" 1 45 Beck & Pollitzer

" 100 607 L. & I. D. Jt. Co.

" 500 500 G. Hedges & Son

" 1,855 3,229 R. G. Hall & Co.

" 1,000 1,000 Humphrey & Co.

" 200 200 Devitt & Hett

" 79 400 Elkan & Co.

" 320 410 L. Sutro & Co.

" 2,000 2,000 Beresford & Co.

" 2,000 2,000 F. W. Crombie & Co.

" 2,000 2,000 Boake, Roberts, & Co.

" 25 150 T. M. Duche & Sons

" 100 572 Linton, Hubbard & Co.

" 1,000 1,000 Fellows, Morton & Co.

France, 200 200 L. Norman & Co.

Lead Acetate—

Holland, 30 pkgs. F. Smith

Magnesium—

Germany, 4 pkgs. D. W. Greenhough & Son

Manure—

Germany, 101 t. Perkins & Homer

Methyl Alcohol—

Holland, 7 dms. Stein Brs. & Co.

Mica—

E. Indies, 4188 W. M. Smith & Sons

U. States, 15 Knight & Morris

Canada, 35 Allan Brs. & Co.

Ochre—

France, 7 brls. J. L. Lyon & Co.

Holland, 9 pkgs. Philipps & Graves

France, 87 cks. W. Harrison & Co.

" 37 J. & T. Seddon

Paraffin Wax—

U. States, 2,805 brls. J. H. Usmar & Co.

" 308 G. H. Frank

Phosphate Rock—

France, 980 t. A. Hunter & Co.

" 50 C. A. & H. Nichols

Pitch—

N. Russia, 500 cks. Fellows, Morton, & Co.

" 500 Linck, Moeller, & Co.

" 500 brls. W. F. Malcolm & Co.

U. States, 24 pkgs. C. J. Capes & Co.

Plumbago—

Germany, 10 cs. L. & I. D. Jt. Co.

Potash—

Canada, 154 c. Charles & Fox

France, 200 Petri Brs

" 24 pkgs. Mead, Son, & Co.

Potassium Carbonate—

France, 90 c. J. A. Reid

Germany, 105 Fellows, Morton, & Co.

France, 30 Spies Brs. & Co.

Potassium Cyanide—

Holland, 60 pkgs. F. Boehm

Potassium Prussiate—

Germany, 5 pkgs. Magee, Taylor, & Co.

Potassium Sulphate—

France, 3 pkgs. Mead, Son, & Co.

Pumice Stone—

Italy, 12 t. Union L. Co., Ltd.

" 12 " "

" 2 Acton & Borman

" 1 G. S. N. Co.

" 16 c. A. G. Soater & Co.

Canary Is, 10 t. W. Caudery & Co.

Rosin—

France, 6 brls. J. Watts & Sons

U. States, 315 F. & S. Chiesman & Co.

Saltpetre—

E. Indies, 600 bgs. Brown & Elmslie

Germany, 20 kgs. Baisa Brs. & Co.

Peru, 8,665 bgs. Anglo Contl. G. Wks.

Sodium Acetate—

Germany, 8 pkgs. A. Hughes

Sodium Hyposulphite—

Holland, 29 pkgs. Beresford & Co.

Stearine—

Belgium, 332 bgs. H. Hill & Sons

France, 138 Beresford & Co.

Sulphate—

Germany, 21 pkgs. L. & N. W. Rly.

Sulphur—

Italy, 16 t. C. J. Capes & Co.

Tar—

N. Russia, 3,887 brls. Linck, Moeller, & Co.

" 1,860 W. F. Malcolm & Co.

Tartaric Acid—

Holland, 8 pkgs. B. & F. Wf. Co., Ltd.

" 3 Middleton & Co.

" 6 F. C. Devon & Co.

Tin Oxide—

Germany, 1 ck. H. Lambert

Turpentine—

N. Russia, 105 brls. C. B. Leighton

France, 103 Chiesman & Co.

" 31 cks. T. Trapp & Sons

Ultramarine—

Germany, 1 cs. H. Brooks & Co.

Holland, 14 pkgs. Haefner, Hilpert, & Co.

Germany, 37 cs. G. Steinhoff

Varnish—

U. States, 10 pkgs. Dawson Brs.

" 5 Magee, Taylor, & Co.

" 3 Randall Brs

Verdigris—

France, 2 cks. B. & F. Wf. Co., Ltd.

White Lead—

Belgium, 21 brls. J. L. Lyon & Co.

Holland, 12 cks. Spies Brs. & Co.

" 21 Randall Brs.

Germany, 20 N. J. Fenner & Co.

Belgium, 28 Colthurst & Harding

Germany, 21 Randall Brs.

" 34 Petri Brs.

France, 11 Colthurst & Harding

Austria, 50 cs. M. Dk. Co.

Germany, 12 H. Lambert

" 35 S. H. Willoughby

Holland, 36 pkgs. W. Balchin

Zinc Oxide—

Holland, 50 cks. Burrell & Co.

" 175 brls. M. Ashby, Ltd.

" 70 pkgs. Prop. Dowgate Dk

Germany, 50 brls. M. Ashby, Ltd.

LIVERPOOL.

Week ending September 7th.

Acetic Acid—

Rotterdam, 17 balns.

Alumina Sulphate—

Rotterdam, 12 cks.

Antimony—

Antofagasta, 122 bgs. Hainsworth, Watson & Co.

Seville, 108 Roberts & Evans.

Calcined Magnesla—

Genoa, 4 cs.

Calcium Chloride—

B. Ayres, 2 t. 11

Adelaide, 5 2

New York, 12 10

Caoutchouc—

Rangoon, 5 bls.

Carbolic Acid—

Rotterdam, 5 t.

Galatz, 2 5 c.

Hamburg, 5 14

Amsterdam, 3 3

Philadelphia, 16 16

Rouen, 2 16

B. Ayres, 17 17

Carbonate of Lime—

Lisbon, 16 3 q.

Caustic Soda—

Algoa Bay, 20 bxs.

Boston, 150 dms.

Genoa, 234

Gefle, 50 brls.

Gijon, 8 dms.

Guantanamo, 10

Hamburg, 42

Hiogo, 200

Ibrail, 152

La Guayra, 40

Monterey, 200

N. Orleans, 173

Pernambuco, 55

New York, 513

St. Petersburg, 200

Yokohama, 83

Barcelona, 545

Calcutta, 18

Lisbon, 35

Montreal, 33

Nuefistas, 40

Oporto, 75

Passages, 59

Philadelphia, 30

Pt. Elizabeth, 14

Rio de Janeiro, 20

Rouen, 150

Savanilla, 50

Volo, 15

Chemicals (otherwise undescribed)

Antwerp, 2 q.

Odessa, 8 t. 6 c.

Hamburg, 15 1

Syra, 6 10

China Clay—

Bombay, 20 cks.

Rio de Janeiro, 8 t.

Citric Acid—

Cape Town, 2 c.

Monterey, 2

B. Ayres, 5 2 q.

Coal Products—**Alizarine Colours**

New York, 2 cks.

Aniline

Bombay, 3 cs.

Aniline Colours

Constantinople, 3 cs.

Genoa, 1 1 kg.

Lisbon, 1

Philadelphia, 6 cks.

Aniline Oil

Genoa, 2 dms. 4 tins 1 ck.

Aniline Salts

Genoa, 3 cks. 5 kgs.

Pitch

Almeria, 30 brls.

Galatz, 100

Ibrail, 120

Tar

Galatz, 75 brls.

Honolulu, 30

Ibrail, 5

St. John's, N.F., 50 hf-brls.

Copperas—

Wellington, N.Z., 1 t.

Syra, 3 2 c.

Volo, 4 13

Beyrout, 5 1

M. Video, 14

Copper Sulphate—

M. Video, 1 t. 6 c. 3 q.

Venice, 5 17

Ancona, 3 1 2

Genoa, 5 9 3

Bari, 7 13 3

Ibrail, 3 1 43

Galatz, 1 14

Ghent, 6 3 3

Amsterdam, 2 1 29

Passages, 5 2 1

Naples, 4 14

Rouen, 5 2

Palermo, 55 9 1

Constantinople, 5 70

Copenhagen, 3 2 2 44

Farina—

Malaga, 10 bgs.

Iron Oxide—

Havre, 2 t. 4 c.

Cape Town, 15 7

Iron Sulphate—

Almeria, 3 t. 5 c. 3 q.

Magnesium Chloride—

Bombay, 18 t. 19 c.

Magnesium Sulphate—

Montreal, 40 brls.

Manganese—

Antwerp, 2 t.

Manure—

Havre, 200 t. 2 c. 3 q.

St. Nazaire, 850 3

Rotterdam, 29 11

Genoa, 148 12 3

Marseilles, 116 2 2

Metallic Sodium—

Rotterdam, 2 t. 2 c. 2 q.

Ochre—

St. John's, N.F., 80 kgs.

Oxalic Acid—

Barcelona, 5 t. 3 c.

Paint—

C. C. Castle, 36 kgs.

Cape Town, 1 ck.

Cavite, 3

Constantinople, 1 brl.

Eten, 90

Havre, 4 4 dms.

Lisbon, 26 10

Manaos, 15 5 24

Manila, 1,000 12

Mayaguez, 1

Mexico, 29

M. Video, 29

Rio Grande, 20 2

Rio de Janeiro, 20 35

Rosario, 35

Bilbao, 2 bxs.

Brass, 40

Fayal, 152 2

Gibraltar, 13

Guayaquil, 10

Hamburg, 9

Lanzarote, 1

Pernambuco, 30 26

Port Said, 78

Progresso, 20 2

St. John's, N.F., 15

St. Juan, 175 2

Santiago de Cuba, 2

Tripoli, 20 2

Valparaiso, 2

Painters' Colours—

Accra, 6 cs.

Amsterdam, 5 dms. 6 kgs.

Antwerp, 11 kgs.

Barcelona, 2 brls.

Beyrout, 15 225

Bombay, 40 400

Coquimbo, 10 42 cks.

E. London, 3 2

Galatz, 400

Hong Kong, 68

Honolulu, 2 420

Jacmel, 5 5

Jaffa, 2 15 8

Herassunde, 70 2

Madras, 30 50 6

Matanzas, 7

Montreal, 16

New York, 300 5

Philadelphia, 15

Piræus, 10

Salonica, 6 3

Toronto, 2 1 10

St. John's, N.F., 430 2 17

Malta, 81

Mayaguez, 6

Santos, 15

Paraffin Wax—

Syra, 34 bgs.

Phosphorus—

Tampico, 5 cs.

Mexico, 6 70

Pitch—

Talcabuan, 500 brls.

Plumbago—

Valencia, 2 cks.

Potash Salts—

Calcutta, 5 c.

Potassium Bichromate—

Syra, 12 c.

Stockholm, 8 1 q.

Potassium Chlorate—

Rotterdam, 2 t. 10 c.

B. Ayres, 2 132

Tientsin, 2 140

Hamburg, 3 67

Vera Cruz, 1 179

Mexico, 15 48

Hiogo, 34 9 2,267

Konigsberg, 1 15 98

Stettin, 1 10 94

New York, 8 8 476

Antwerp, 1 56

St. Petersburg, 5 10 308

Yokohama, 10 633

Potassium Sulphate—

Honolulu, 80 t.

Salt—

Baltimore, 195 t.

Boston, 220

Brisbane, 32 3 c.

B. Ayres, 2 5

Melbourne, 2

M. Video, 2

New York, 65

Para, 71 8

St. John's, N.F., 15

San Francisco, 936 15

Shanghai, 17

Skein, 250

Trinidad, 33

Montreal, 436 9

Old Calabar, 33

Antwerp, 225

Assinee, 25

Cameroons, 18 8

Faroe Isle, 60

Montreal, 1,108 13

Para, 564 7

Rotterdam, 276

Salt Cake—

Ghent, 120 t.

Saltpetre—

Charlotte Town, 15 c.

Manaos, 10 11

Para, 16 2 q.

Payta, 8 9

Marseilles, 5 6

Ceara, 2 t. 2 69

Soap—

Accra, 50 bxs.

Alexandria, 20 5 cs.

Algoa Bay, 180

Amsterdam, 77 500

Antigua, 180

Antwerp, 400

Barbadoes, 1,151

Belize, 450

Buenaventura, 80

Calcutta, 23

Cameroons, 20

Cape Town, 29

Chama, 40

Constantinople, 1

Curacao, 460

E. London, 300

Genoa, 150

Gibraltar, 120

Gr. Canary, 235

Guadeloupe, 1,500

Iquibo, 200

Kingston, Jam., 635

Lagos, 130

Las Palmas, 330

Lisbon, 2 cks.

Loanda, 30

Madras, 20 11

Malta, 60

Manaos, 1,096

Naples, 1

New York, 100 64

Palma, 224

Para, 300

Pt. Natal, 300

Quebec, 1

Rangoon, 250 12

St. Kitts, 300

St. John's, Nfd., 170 36

St. Lucia, 193

St. Thomas, 200

Santos, 50

Shanghai, 2,000

Singapore, 1,750

Teneriffe, 253

Valparaiso, 2

Bombay, 2

B. Ayres, 110

Brussels, 400

Montreal, 250

Mossel Bay, 100

Mussara, 10

Rotterdam, 500

Salonica, 30

Trinidad, 2,600

Toronto, 850

Soapstone—

New York, 15 brls.

Soda—

Batavia, 15 cks.

Soda Alkali—

Montreal, 50 brls.

Quebec, 30

Salonica, 35

Smyrna, 35

Soda Ash—

Adelaide, 13 cks.

Amsterdam, 100 bgs.

Antwerp, 300

B. Ayres, 200

ide—			
402 t.	16 c.	£604	
200 t.	8 c.	£772	
49	1	202	
gre,	7 2 q.	6	
5	3		
osphate—			
247	1	578	
362	1 3 q.	1,810	
280	3	530	
ry,	2	5	
38 cks.			
10 t.	6 c.		
2 cs.			
neiro	4		
N.F.,	15 brls.		
4			
2	2 cks.		
te—			
24 cks.			
HULL.			
ending September 9th.			
20 kgs.			
100 bls.			
m Sulphate—			
99 bgs.			
en,	250		
124			
683			
300			
482			
alta—			
98 cks.			
g Powder—			
6 cks.			
10			
30			
20 cks.			
oda—			
28 kgs.			
250 dms.			
222			
35			
300			
(otherwise undescribed)			
16 cks.	5 pks.		
6	16 pks.		
11	14 pks.	8 cs.	
ople,	75		
37	22		
1	4 pks.	9	
5			
13			
94			
265	2	30	
50 pks.			
4			
12	32 pks.		
d Oil—			
400 cwt.			
100			
3			
239			
50			
400			
158			
1,221			
50			
1 dm.			
10 cks.			
25			
150			
(otherwise undescribed)			
1 bl.			
12			
1 cs.			
5 cks.			
6			
50 t.			
16 cwt.			
41			
69			

Christiania,	560	
Christiansund,	17	
Drontheim,	114	
Stavanger,	44	
Mineral White—		
Stettin,	50 bls.	
Painters' Colours—		
Antwerp,	1 cs. 21 cks.	135 pks.
Amsterdam,	4	10
Bergen,	1	328 dms.
Bremen,	3	
Christiania,	20	56 92 pks.
Drontheim,	15	
Danzig,	10	3 cs.
Dunkirk,	8	
Ghent,	6	
Gothenburg,	1	
Hamburg,	6	1 8 pks.
Harlingen,	7	
Konigsberg,	35	
New York,	51	
Odessa,	245	
Rotterdam,	6	41 pks.
Riga,	1	
St. Petersburg,	32	
Stettin,	56	100
Pitch—		
Antwerp,	168 t.	5 cks.
Tallow—		
Bremen,	100 cks.	
Tar—		
Rotterdam,	9 cks.	
Varnish—		
Antwerp,	1 ck.	2 bls.
Christiania,	1	
Copenhagen,	3	

GLASGOW.

Week ending September 14th.

Ammonium Sulphate—		
Antwerp,	20 t.	4½ c. £225
Demerara,	5	14 85
Hamburg,	250 bgs.	340
Asbestos—		
Calcutta,	1 t.	6 c. £20
Boracic Acid—		
Japan,	2 t.	5 t. £82
Caustic Soda—		
Calcutta,	49 t.	18 c. £470
Rangoon,		27
Coal Products—		
Creosote Oil		
Russia,	94 t.	2½ c. £303
St. Malo,	120	8 235
Pitch		
Halifax, N.S.,	23 t.	16 c. £35
Bombay,	12	10 £27. 17s.
Russia,	13	11 £25
New York,	61	8 70
Tar		
Halifax, N.S.,	34 t.	17 c. £68
Constantinople,	254	10 440
Russia,	45	2 97
Christiania,	25 cks.	£12. 10s.
Hamburg,		82 brls. 33. 10
New York,	40 t.	£142
St. Petersburg,		1,200
Rangoon,		38
Calcutta,		60
Riga,		230 258
Coal Products (otherwise undes.)		
Rotterdam,	5 puns.	£35
Colours—		
Montreal,	31 t.	18½ c. £124
Copper Sulphate—		
Calcutta,	2 t.	10 c. £40
Cottonseed Oil—		
Rotterdam,	120 brls.	£405
Dyestuffs—		
Logwood		
Montreal,	13 t.	10½ c. £80
Glucose—		
Bombay,	6 t.	14½ c. £120
Lime—		
Demerara,	68 t.	£49
Linseed Oil—		
Madras,		£30
Montreal,	3 t.	8¾ c. 77
Cape Colony,	1	6¼ 31
Shanghai,	3	11 89
Colombo,	160 glns.	19
Litharge—		
Montreal,	8 t.	18 ½ c. £121
Manganese—		
Hamburg,	15 t.	£128
Paint—		
Singapore,	1 t.	8 c. £11
St. John's, N.F.,	2	1¼ 37

Shanghai,	3	½	76
New York,	8	5½	266
Rotterdam,			135
Rangoon,			2
Calcutta,	5 t.	3¼ c.	£82
Bombay,	2	10	40
Colombo,			42
Painters' Colours—			
Paraffin Wax—			
Cape Colony,	6 t.	1½ c.	£184
Constantinople,	4	15¼	120
Russia,	2	15	59
Italy,	5	11	157
Trieste,	14	3	338
Bilbao,		19¼	25
Riga,	50 bgs.	25 cks.	180
Hamburg,		30	70
Plumbago—			
Rangoon,	16½ c.		£95
Potassium Bichromate—			
Antwerp,	2 t.	17¼ c.	£112
Constantinople,	5	5	226
Rotterdam,		11 cks.	175
Lisbon,	3	12¾	145
Japan,	7	3¼	320
Calcutta,		10	23
Potassium Prussiate—			
Montreal,	10¼ c.		£38. 10s.
Rosin Oil—			
Rotterdam,	20 brls.		£37
Soap—			
Halifax, N.S.	1 t.	5 c.	£26
Cape Colony,	22	5	20
Sodium Bichromate—			
Antwerp,	2 t.	4¾ c.	£70
Lisbon,	1	8¼	48
Sulphuric Acid—			
Rangoon,			£221
Tallow—			
Amsterdam,	4 t.	8 c.	£119
Rotterdam,		140	272
White Lead—			
Calcutta,	5 t.		£72
Cape Colony,	3	3 c.	58
Shanghai,	5	14½	100

TYNE.

Week ending September 9th.

Alkali—		
Rotterdam,	4 t.	8 c.
Genoa,	10	10
Gothenburg,	8	19
Riga,	10	3
Alum—		
Drammen,	5 t.	
Ammonia Alkali—		
Aalborg,	10 t.	
Antimony—		
Rotterdam,	2 t.	
St. Petersburg,	37	5 c.
Arsenic—		
Gutujewski,	10 t.	7 c.
Barium Carbonate—		
Riga,	27 t.	10 c.
Barytes—		
St. Petersburg,	15 t.	1 c.
Basic Phosphate—		
Aalborg,	100 t.	12 c.
Bleaching Powder—		
Antwerp,	25 t.	13 c.
Hamburg,	45	18
Christiania,	15	1
Bergen,	4	9
Drontheim,	10	
Norrkoping,		18
Odessa,	39	18
Rotterdam,	25	6
Gothenburg,	35	
Copenhagen,	30	
Danzig,	5	14
Newfairwater,	40	4
Riga,	15	
St. Petersburg,	102	10 164 cks.
Calced Magnesia—		
Odessa,	2 c.	
Caustic Soda—		
Antwerp,	1 t.	10 c.
Christiania,	2	18
Drammen,	5	4
Bergen,	2	18
Rotterdam,	11	1
Gothenburg,	24	19
Copenhagen,	1	9
Newfairwater,	10	3
Riga,	23	13
St. Petersburg,		86 dms.

Litharge—		
Riga,	10 t.	14 c.
Magnesia—		
Hamburg,		1 c.
Manure—		
Savona,	100 t.	2 c.
Ochre—		
Christiania,	2 t.	7 c.
Paint—		
Antwerp,		10 c.
Rotterdam,		15
Paraffin Wax—		
Copenhagen,	5 t.	2 c.
Soda—		
Jersey,	41 t.	
Antwerp,	10	3 c.
Christiania,	19	16
Drammen,	10	4
Odense,	5	
Drontheim,	10	2
Norrkoping,	14	13
Rotterdam,	29	18
Gothenburg,	10	1
Soda Ash—		
Antwerp,	5 t.	
Hamburg,	10	3 c.
Christiania,	47	3
Bergen,	5	5
Horsens,	1	6
Odessa,	20	9
Newfairwater,	10	6
Gothenburg,	50	
Hernosand,	55	8
Sodium Silicate—		
Odessa,	38 t.	19 c.
Sodium Sulphate—		
Odense,	2 t.	1 c.
Norrkoping,	450	6
Newfairwater,	42	
Hernosand,	185	7
Sodium Sulphide—		
Rotterdam,		15 c.
Sulphur—		
Drammen,	150 t.	
Drontheim,	21	
Ghent,	5	
Riga,	50	
Superphosphate—		
Helsingborg,	1,080 t.	2 c.
Savona,	300	
Tar—		
Jersey,	2 t.	1 c.
Tin Ashes—		
Copenhagen,	1 bg.	1 ck.
White Lead—		
Copenhagen,	4 t.	2 c.
Riga,	4	17
Bergen,	1	12

GOOLE.

Week ending September 6th.

Alkali—		
Dunkirk,	30 dms.	
Chemicals (otherwise undescribed)		
Boulogne,	48 cks.	
Rotterdam,	3	18 pks.
Ghent,	6	
Coal Products (otherwise undes.)		
Dunkirk,	2 dms.	
Ghent,	25	
Dyestuffs (otherwise undescribed)		
Boulogne,	5 cks.	
Ghent,	1 cs.	
Hamburg,	45 pks.	
Manure—		
Boulogne,	34 bgs.	
Pitch—		
Antwerp,	357 t.	

GRIMSBY.

Week ending September 9th.

Chemicals (otherwise undescribed)		
Dieppe,	2 cks.	2 cs. 68 pks.
Hamburg,	8 t.	5 8
Rotterdam,	41	7
Coal Products (otherwise undes.)		
Dieppe,	140 cks.	
Dyestuffs (otherwise undescribed)		
Dieppe,	10 cks.	
Manure—		
Esbjerg,	49 t.	

Calcined Magnesia—

Genoa, 4 cs.

Calcium Chloride—

B. Ayres, 2 t. 11

Adelaide, 5 2

New York, 12 10

Caoutchouc—

Rangoon, 5 bis.

Carbolic Acid—

Rotterdam, 5 t.

Galatz, 2 5 c.

Amsterdam, 5 14

Philadelphia, 16 10

Rouen, 2 16

B. Ayres, 17 17

Carbonate of Lime—

Lisbon, 16 3 q.

Caustic Soda—

Algoa Bay, 20 bxs.

Boston, 150 dms.

Genoa, 234

Gefle, 50 brls.

Gijon, 8 dms.

Guantanamo, 10

Hamburg, 42

Hiogo, 200

Ibrail, 152

La Guayra, 40

Monterey, 200

N. Orleans, 173

Pernambuco, 55

New York, 513

St. Petersburg, 200

Yokohama, 83

Barcelona, 545

Calcutta, 18

Lisbon, 35

Montreal, 33

Nuefittas, 40

Odessa, 75

Oporto, 59

Pasages, 30

Philadelphia, 50

Pt. Elizabeth, 14

Rio de Janeiro, 20

Rouen, 150

Savanilla, 50

Volo, 15

Chemicals (otherwise undescribed)

Antwerp, 2 q.

Odessa, 8 t. 6 c. 2

Hamburg, 15 1

Syra, 6

China Clay—

Bombay, 20 cks.

Rio de Janeiro, 8 t.

Citric Acid—

Cape Town, 2 c.

Monterey, 2

B. Ayres, 5 2 q.

Coal Products—**Alizarine Colours**

New York, 2 cks.

Aniline

Bombay, 3 cs.

Aniline Colours

Constantinople, 3 cs.

Genoa, 1 1 kg.

Lisbon, 1

Philadelphia, 6 cks.

Aniline Oil

Genoa, 2 dms. 4 tins 1 ck.

Aniline Salts

Genoa, 3 cks. 5 kgs.

Pitch

Almeria, 30 brls.

Galatz, 100

Ibrail, 120

Tar

Galatz, 75 brls.

Honolulu, 30

Ibrail, 5

St. John's, N.F., 50 hf-brls.

Copperas—

Wellington, N.Z., 1 t.

Syra, 3 2 c.

Volo, 4 13

Beyrout, 5 1

M. Video, 14

Copper Sulphate—

M. Video, 1 t. 6 c. 3 q.

Venice, 5 17

Ancona, 3 1 2

Genoa, 5 9 3

Bari, 7 13 3

Ibrail, 3 1

Ghent, 1

Amsterdam, 2 1

Pasages, 5 2 1

Naples, 4 14

Rouen, 5 2

Palermo, 55 9 1

Constantinople, 5 70

Copenhagen, 3 2 2 44

Farina—

Malaga, 10 bgs.

Iron Oxide—

Havre, 2 t. 4 c.

Cape Town, 15

Iron Sulphate—

Almeria, 3 t. 5 c. 3 q.

Magnesium Chloride—

Bombay, 18 t. 10 c.

Magnesium Sulphate—

Montreal, 40 brls.

Manganese—

Antwerp, 2 t.

Manure—

Havre, 200 t. 2 c. 3 q.

St. Nazaire, 850 3

Rotterdam, 29 11

Genoa, 148 12 3

Marseilles, 116 2 2

Metallic Sodium—

Rotterdam, 2 t. 2 c. 2 q.

Ochre—

St. John's, N.F., 80 kgs.

Oxalic Acid—

Barcelona, 5 t. 3 c.

Paint—

C. C. Castle, 36 kgs.

Cape Town, 1 ck.

Cavite, 3

Constantinople, 90 1 brl.

Eten, 90

Havre, 26 4 4 dms.

Lisbon, 26 10

Manaos, 15 5 24

Manila, 1,000 12

Mayaguez, 1

Mexico, 2

M. Video, 29

Rio Grande, 2

Rio de Janeiro, 20

Rosario, 35

Bilbao, 2 bxs.

Brass, 40

Fayal, 152 2

Gibraltar, 13

Guayaquil, 13 10

Hamburg, 9

Lanzarote, 1

Pernambuco, 30 26

Port Said, 78

Progresso, 20 2

St. John's, N.F., 15

San Juan, 175 2

Santiago de Cuba, 2

Tripoli, 20 2

Valparaiso, 2

Painters' Colours—

Accra, 6 cs.

Amsterdam, 5 dms. 6 kgs.

Antwerp, 11 kgs.

Barcelona, 2 brls.

Beyrout, 15 225

Bombay, 40 400 42 cks.

Coquimbo, 10

E. London, 3 2

Galatz, 400

Hong Kong, 68

Honolulu, 2 420 50

Jacmel, 5 5

Jaffa, 2 15 8

Herassunde, 70 2

Madras, 30 50 6

Matanzas, 7

Montreal, 16

New York, 300 5

Philadelphia, 15

Piraeus, 10

Salonica, 6 3

Toronto, 2 1 10

St. John's, N.F., 430 2 17

Malta, 84

Mayaguez, 6

Santos, 15

Paraffin Wax—

Syra, 34 bgs.

Phosphorus—

Tampico, 5 cs.

Mexico, 6

Pitch—

Talcabuan, 500 brls.

Plumbago—

Valencia, 2 cks.

Potash Salts—

Calcutta, 5 c.

Potassium Bichromate—

Syra, 12 c.

Stockholm, 8 1 q.

Potassium Chlorate—

Rotterdam, 2 t. 10 c.

B. Ayres, 2

Tientsin, 2 140

Hamburg, 3 67

Vera Cruz, 1 179

Mexico, 15 48

Hiogo, 34 9 2,267

Konigsberg, 1 15 98

Stettin, 1 10 94

New York, 8 8 476

Antwerp, 1 56

St. Petersburg, 5 10 308

Yokohama, 10 633

Potassium Sulphate—

Honolulu, 80 t.

Salt—

Baltimore, 195 t.

Boston, 220

Brisbane, 32 3 c.

B. Ayres, 4 5

Melbourne, 2

M. Video, 2

New York, 65

Para, 71 8

St. John's, N.F., 15

San Francisco, 936 15

Shanghai, 17

Skein, 250

Trinidad, 33

Montreal, 436 9

Old Calabar, 33

Antwerp, 225

Assinee, 25

Cameroons, 18 8

Faroe Isle, 60

Montreal, 1,108 13

Para, 564 7

Rotterdam, 276

Salt Cake—

Ghent, 120 t.

Saltpetre—

Charlotte Town, 15 c.

Manaos, 10 11

Para, 16 2 q. 20

Payta, 8 9

Marseilles, 5 6

Ceara, 2 t. 2 69

Soap—

Accra, 50 bxs.

Alexandria, 20 5 cs.

Algoa Bay, 180

Amsterdam, 77 500

Antigua, 180

Antwerp, 400

Barbadoes, 1,151

Belize, 450

Buenaventura, 80

Calcutta, 23

Cameroons, 20

Cape Town, 29

Chama, 40

Constantinople, 1

Curacao, 460

E. London, 300

Genoa, 150

Gibraltar, 120

Gr. Canary, 235

Guadeloupe, 1,500

Iquibo, 200

Kingston, Jam., 635

Lagos, 130

Las Palmas, 330

Lisbon, 2 cks.

Loanda, 30

Madras, 20 11

Malta, 60

Manaos, 1,096

Naples, 1

New York, 100 64

Palma, 224

Para, 300

Pt. Natal, 300

Quebec, 1

Rangoon, 250 12

St. Kitts, 300

St. John's, Nfd., 170 36

St. Lucia, 193

St. Thomas, 200

Santos, 50

Shanghai, 2,000

Singapore, 1,750

Teneriffe, 253

Valparaiso, 2

Bombay, 2

B. Ayres, 110

Brussels, 400

Montreal, 250

Mossel Bay, 100

Mussara, 10

Rotterdam, 500

Salonica, 30

Trinidad, 2,600

Toronto, 850

Soapstone—

New York, 15 brls.

Soda—

Batavia, 15 cks.

Soda Alkali—

Montreal, 50 brls.

Quebec, 30

Salonica, 35

Smyrna, 35

Soda Ash—

Adelaide, 13 cks.

Amsterdam, 100 bgs.

Antwerp, 300

B. Ayres, 200 brls.

Spent Oxide—			
Rotterdam,	400 t.	16 c.	£604
Sulphur—			
Boston,	200 t.	8 c.	£772
Montreal,	40	1	202
Havana,	1		6
Porto Alegre,	7	2 q.	3
M. Video,	5		3
Superphosphate—			
Passages,	247	1	578
Lisbon,	362	1 3 q.	1,810
Nantes,	280	3	530
Gr. Canary,	2		5
Tallow—			
Oporto,	38 cks.		
Vido,	10 t.	6 c.	
Varnish—			
Manila,	2 cs.		
Rio de Janeiro	4	15 brls.	
St. John's, N.F.,	1		
Fayal,	4		
New York,	2	2 cks.	
Trinidad,	2		
Inc White—			
Rouen,	24 cks.		

HULL.

Week ending September 9th.

Alkali—			
Antwerp,	20 kgs.		
Stettin,	100 bls.		
Ammonium Sulphate—			
Antwerp,	99 bgs.		
Copenhagen,	250		
Dunkirk,	124		
Hamburg,	683		
Koenen,	300		
Stettin,	482		
Aniline Salts—			
Danzig,	98 cks.		
Bleaching Powder—			
Danzig,	6 cks.		
Gothenburg,	2		
Riga,	10		
Stettin,	30		
Borax—			
Antwerp,	20 cks.		
Caustic Soda—			
Antwerp,	28 kgs.		
Abo,	250 dms.		
Danzig,	222		
Konigsberg,	33		
Riga,	300		
Chemicals (otherwise undescribed)			
Antwerp,	16 cks.	5 pks.	
Amsterdam,	6	16 pks.	
Christiania,	11	14 pks.	8 cs.
Constantinople,	75		
Copenhagen,	1		
Danzig,	37	22	
Gothenburg,	1	4 pks.	9
Hamburg,			
Hartingen,	5		
Konigsberg,	13		
Odessa,	94		
Rotterdam,			30
Riga,	265	50 pks.	
St. Petersburg,			4
Stockholm,			1
Stettin,	12	32 pks.	
Cottonseed Oil—			
Antwerp,	400 cwt.		
Bremen,	100		
Christiania,	3		
Copenhagen,	239		
Gothenburg,	50		
Hamburg,	400		
Konigsberg,	158		
Rotterdam,	1,221		
Stettin,	50		
Creosote—			
Antwerp,	1 dm.		
Christiania,	10 cks.		
Dunkirk,	25		
Gothenburg,	150		
Dyestuffs (otherwise undescribed)			
Amsterdam,	1 bl.		
Christiania,	12		
Odessa,	1 cs.		
Riga,	5 cks.		
Stettin,	6		
Guanine—			
Dunkirk,	50 t.		
Linseed Oil—			
Antwerp,	16 cwt.		
Abo,	41		
Bergen,	69		

Christiania,	560		
Christiansund,	17		
Drontheim,	114		
Stavanger,	44		
Mineral White—			
Stettin,	50 bls.		
Painters' Colours—			
Antwerp,	1 cs.	21 cks.	135 pks.
Amsterdam,	4	10	
Bergen,	1	328 dms.	
Bremen,	3		
Christiania,	20	56	92 pks.
Drontheim,	15		
Danzig,	10	3 cs.	
Dunkirk,	8		
Ghent,	6		
Gothenburg,	1		
Hamburg,	6	1	8 pks.
Hartingen,	7		
Konigsberg,	35		
New York,	51		
Odessa,	245		
Rotterdam,	6	41 pks.	
Riga,	1		
St. Petersburg,	32		
Stettin,	56	100	
Pitch—			
Antwerp,	168 t.	5 cks.	
Tallow—			
Bremen,	100 cks.		
Tar—			
Rotterdam,	9 cks.		
Varnish—			
Antwerp,	1 ck.	2 bls.	
Christiania,	1		
Copenhagen,	3		

GLASGOW.

Week ending September 14th.

Ammonium Sulphate—			
Antwerp,	20 t.	4½ c.	£225
Demerara,	5	14	85
Hamburg,	250 bgs.		340
Asbestos—			
Calcutta,	1 t.	6 c.	£20
Boracic Acid—			
Japan,	2 t.	5 t.	£82
Caustic Soda—			
Calcutta,	49 t.	18 c.	£470
Rangoon,			27
Coal Products—			
Creosote Oil			
Russia,	94 t.	2½ c.	£303
St. Malo,	120	8	235
Pitch			
Halifax, N.S.,	23 t.	16 c.	£35
Bombay,	12	10	£27.175
Russia,	13	11	£25
New York,	61	8	70
Tar			
Halifax, N.S.,	34 t.	17 c.	£68
Constantinople,	254	10	440
Russia,	45	2	97
Christiania,	25 cks.		£12.108
Hamburg,		82 brls.	33.10
New York,	40 t.		£142
St. Petersburg,		1,200	
Rangoon,			38
Calcutta,			60
Riga,		230	258
Coal Products (otherwise undes.)			
Rotterdam,	5 puns.		£35
Colours—			
Montreal,	31 t.	18½ c.	£124
Copper Sulphate—			
Calcutta,	2 t.	10 c.	£40
Cottonseed Oil—			
Rotterdam,	120 brls.		£405
Dyestuffs—			
Logwood			
Montreal,	13 t.	10½ c.	£80
Glucose—			
Bombay,	6 t.	14½ c.	£120
Lime—			
Demerara,	68 t.		£49
Linseed Oil—			
Madras,			£30
Montreal,	3 t.	8½ c.	77
Cape Colony,	1	6½	31
Shanghai,	3	11	89
Colombo,	160 glns.		19
Litharge—			
Montreal,	8 t.	18½ c.	£121
Manganese—			
Hamburg,	15 t.		£128
Paint—			
Singapore,	1 t.	8 c.	£11
St. John's, N.F.,	2	1¼	37

Shanghai,	3	¾	76
New York,	8	5½	266
Rotterdam,			135
Rangoon,			2
Painters' Colours—			
Calcutta,	5 t.	3¾ c.	£82
Bombay,	2	10	40
Colombo,			42
Paraffin Wax—			
Cape Colony,	6 t.	1½ c.	£184
Constantinople,	4	15½	120
Russia,	2	15	59
Italy,	5	11	157
Trieste,	14	3	338
Bilbao,		19½	25
Riga,	50 bgs.	25 cks.	180
Hamburg,		30	70
Plumbago—			
Rangoon,	16½ c.		£25
Potassium Bichromate—			
Antwerp,	2 t.	17½ c.	£112
Constantinople,	5	5	226
Rotterdam,		11 cks.	175
Lisbon,	3	12½	145
Japan,	7	3¼	320
Calcutta,		10	23
Potassium Prussiate—			
Montreal,	10¾ c.		£38.108
Rosin Oil—			
Rotterdam,	20 brls.		£37
Soap—			
Halifax, N.S.	1 t.	5 c.	£26
Cape Colony,	22	5	20
Sodium Bichromate—			
Antwerp,	2 t.	4¾ c.	£70
Lisbon,	1	8¾	48
Sulphuric Acid—			
Rangoon,			£221
Tallow—			
Amsterdam,	4 t.	8 c.	£119
Rotterdam,	140		272
White Lead—			
Calcutta,	5 t.		£72
Cape Colony,	3	3 c.	58
Shanghai,	5	14½	100

TYNE.

Week ending September 9th.

Alkali—			
Rotterdam,	4 t.	8 c.	
Genoa,	10	10	
Gothenburg,	8	19	
Riga,	10	3	
Alum—			
Drammen,	5 t.		
Ammonia Alkali—			
Aalborg,	10 t.		
Antimony—			
Rotterdam,	2 t.		
St. Petersburg,	37	5 c.	
Arsenic—			
Gutajewski,	10 t.	7 c.	
Barium Carbonate—			
Riga,	27 t.	10 c.	
Barytes—			
St. Petersburg,	15 t.	1 c.	
Basic Phosphate—			
Aalborg,	100 t.	12 c.	
Bleaching Powder—			
Antwerp,	25 t.	13 c.	
Hamburg,	45	18	
Christiania,	15	1	
Bergen,	4	9	
Drontheim,	10		
Norrkoping,		18	
Odessa,	39	18	
Rotterdam,	25	6	
Gothenburg,	35		
Copenhagen,	30		
Danzig,	5	14	
Newfairwater,	40	4	
Riga,	15		
St. Petersburg,	102	10	164 cks.
Calcined Magnesia—			
Odessa,	2 c.		
Caustic Soda—			
Antwerp,	1 t.	10 c.	
Christiania,	2	18	
Drammen,	5	4	
Bergen,	2	18	
Rotterdam,	11	1	
Gothenburg,	24	19	
Copenhagen,	1	9	
Newfairwater,	10	3	
Riga,	23	13	
St. Petersburg,		86 dms.	

Litharge—		
Riga,	10 t.	14 c.
Magnesia—		
Hamburg,		1 c.
Manure—		
Savona,	100 t.	2 c.
Ochre—		
Christiania,	2 t.	7 c.
Paint—		
Antwerp,		10 c.
Rotterdam,		15
Paraffin Wax—		
Copenhagen,	5 t.	2 c.
Soda—		
Jersey,	41 t.	
Antwerp,	10	3 c.
Christiania,	19	16
Drammen,	10	4
Odense,	5	
Drontheim,	10	2
Norrkoping,	14	13
Rotterdam,	29	18
Gothenburg,	10	1
Soda Ash—		
Antwerp,	5 t.	
Hamburg,	10	3 c.
Christiania,	47	3
Bergen,	5	5
Horsens,	1	6
Odessa,	20	9
Newfairwater,	10	6
Gothenburg,	50	
Hermosand,	55	8
Sodium Silicate—		
Odessa,	38 t.	19 c.
Sodium Sulphate—		
Odense,	2 t.	1 c.
Norrkoping,	450	6
Newfairwater,	42	
Hermosand,	185	7
Sodium Sulphide—		
Rotterdam,		15 c.
Sulphur—		
Drammen,	150 t.	
Drontheim,	21	
Ghent,	5	
Riga,	50	
Superphosphate—		
Helsingborg,	1,080 t.	2 c.
Savona,	300	
Tar—		
Jersey,	2 t.	1 c.
Tin Ashes—		
Copenhagen,	1 bg.	1 c.
White Lead—		
Copenhagen,	4 t.	2 c.
Riga,	4	17
Bergen,	1	18

PRICES CURRENT.

WEDNESDAY, SEPTEMBER 20th, 1893.

PREPARED BY MESSRS. HIGGINBOTTOM AND CO., 116, PORTLAND STREET, MANCHESTER.

The values stated are F.O.R. at maker's works, or at usual ports of shipment in U.K. The price in different localities may vary.

Acids:—

	£	s.	d.
Acetic, 25% and 40%	per cwt.	7/-	& 10/6
„ Glacial	„	50/-	
Arsenic S.G., 2000	„	0	14 6
Fluoric	per lb.	0	0 3¼
Muriatic (Tower Salts), 30° Tw.	per bottle	0	0 10
„ (Cylinder), 30° Tw.	„	0	3 0
Nitric 80° Tw.	per lb.	0	0 1¼
Nitrous	„	0	0 1¼
Oxalic	nett	0	0 3¼
Phosphoric, 1750°	„	0	1 2½
Picric	„	0	1 0
Sulphuric (fuming 50%)	per ton	15	10 0
„ (monohydrate)	„	5	10 0
„ (Pyrites, 168°)	„	3	0 0
„ „ 150°	„	1	5 0
„ (free from arsenic, 145°)	„	1	6 0
Sulphurous (solution) S.G. 1025	„	3	0 0
Tannic (pure)	per lb.	0	1 2
Tartaric	„	0	0 11½
Arsenic, white powdered	nett	per ton	13 10 0
Alum (loose lump)	„	5	2 6
Alumina Sulphate (pure)	„	5	0 0
Aluminoferrous	„	2	10 0
Aluminium	per lb.	0	4 0
Ammonia, Anhydrous	„	0	1 2
„ 880=28°	per lb.	0	0 3
„ =24°	„	0	0 2¼
„ Carbonate	nett	„	0 0 3¼
„ Muriate	per ton	23	10 0
„ „ (sal-ammoniac) 1st & 2nd	per cwt.	37/-	& 35/-
„ Nitrate	per ton	42	0 0
„ Phosphate	per lb.	0	0 10½
„ Sulphate (grey) London	per ton	14	8 9
„ „ (grey) Hull	„	14	7 6
Aniline Oil (pure)	per lb.	0	0 5½
Aniline Salt	„	0	0 5¼
Antimony	per ton	45	10 0
„ (tartar emetic)	per lb.	0	1 0
„ (golden sulphide)	„	0	0 10
Barium Chloride	per ton	7	10 0
„ Carbonate (native)	„	3	10 0
„ Sulphate (native levigated)	„	45/-	to 75/-
Bleaching Powder, 35%	nett	„	8 10 0
„ Liquor, 7%	„	3	10 0
Bisulphide of Carbon	„	11	15 0
Chromium Acetate (crystal)	per lb.	0	0 6
Calcium Chloride	per ton	2	5 0
China Clay (at Runcorn) in bulk	„	17/6	to 35/-

Coal Tar Products and Dyes:—

Alizarine (artificial) 20%	.. .. .	net	per lb.	0	0	8	
Magenta					0	3	9
Anthracene, 30% A, f.o.b. London	.. .. .	per unit	per cwt.	0	1	2	
Benzol, 90% nominal	.. .. .	.. .. .	per gallon	0	1	5	
50/90	.. .. .	.. .. .	.. .. .	0	1	5	
Carbolic Acid (crystallised 40°)	.. .. .	.. .. .	per lb.	0	0	6¼	
„ (crude 60°)	.. .. .	.. .. .	per gallon	0	1	6	
Creosote (ordinary)	.. .. .	.. .. .	.. .. .	0	0	1	
„ (filtered for Lucigen light)	.. .. .	.. .. .	.. .. .	0	0	1½	
Crude Naphtha 30% @ 120° C.	.. .. .	.. .. .	.. .. .	0	0	8	
Grease Oils, 22° Tw.	.. .. .	.. .. .	per ton	2	5	0	
Pitch, f.o.b. Liverpool or Garston	.. .. .	.. .. .	.. .. .	1	5	0	
Solvent Naphtha, 90% at 160°	.. .. .	.. .. .	per gallon	0	1	0	
“Lucigen” and “Wells Oils	.. .. .	.. .. .	.. .. .	0	0	1½	
Copper	.. .. .	.. .. .	per ton	42	10	0	
„ Sulphate	.. .. .	.. .. .	.. .. .	15	15	0	
„ Oxide (copper scales)	.. .. .	.. .. .	.. .. .	40	0	0	
Glycerine (crude)	.. .. .	.. .. .	.. .. .	13	0	0	
„ (distilled S.G. 1250°)	.. .. .	.. .. .	.. .. .	43	0	0	
Iodine	.. .. .	.. .. .	nett, per oz.	0	0	9	
Iron Sulphate (copperas)	.. .. .	.. .. .	per ton	1	12	6	
„ Sulphide (antimony slag)	.. .. .	.. .. .	.. .. .	2	0	0	
Lead (sheet) for cash	.. .. .	.. .. .	.. .. .	11	2	6	
„ Litharge Flake (ex ship)	.. .. .	.. .. .	.. .. .	13	0	0	
„ Acetate (white)	.. .. .	.. .. .	.. .. .	25	15	0	
„ „ brown	.. .. .	.. .. .	.. .. .	17	10	0	
„ Carbonate (white lead) pure	.. .. .	.. .. .	.. .. .	20	0	0	
„ Nitrate	.. .. .	.. .. .	.. .. .	20	0	0	

Lime, Acetate (brown)	..	..	..	per ton	6	10	0
" " (grey)	..	..	..	..	10	10	0
Magnesium (ribbon and wire)	..	..	..	per oz.	0	2	3
" Chloride (ex ship)	..	..	..	per ton	2	7	6
" Carbonate	..	..	..	per cwt.	1	17	6
" Hydrate	..	..	..	per ton	17	0	0
" Sulphate (Epsom Salts)	..	..	..	per ton	2	19	0
Manganese, Sulphate	..	..	..	..	17	15	0
" Borate	..	..	..	per cwt.	2	12	6
" Ore, 70 %	..	..	..	per ton	4	5	0
Methylated Spirit, 61° O.P.	..	..	..	per gallon	0	2	0
Naphtha (Wood), Solvent	..	..	..	..	0	3	6
" Miscible, 60° O.P.	..	..	..	..	0	4	3
Oils:—							
Cotton-seed	..	..	..	per ton	24	0	0
Linseed	..	..	..	..	22	10	0
Lubricating, Scotch, 890°—895°	..	..	..	..	7	5	0
Petroleum, Russian	..	..	..	per gallon	0	0	4
" American	..	..	..	..	0	0	5¼
Potassium (metal)	..	..	..	per oz.	0	3	7
" Bichromate	..	..	..	nett per lb.	0	0	4½
" Carbonate, 90% (ex ship)	..	..	..	per ton	16	15	0
" Chlorate	..	..	..	per lb.	0	0	7¼
" Cyanide, 98%	..	..	..	..	0	2	0
" Hydrate (Caustic Potash) 80/85 %	..	..	..	per ton	21	10	0
" " (Caustic Potash) 75/80 %	..	..	..	..	20	10	0
" " (Caustic Potash) 70/75 %	..	..	..	..	20	0	0
" Nitrate (refined)	..	..	..	per cwt.	1	2	6
" Permanganate	..	..	..	per cwt.	3	5	0
" Prussiate Yellow	..	..	..	per lb.	0	0	9
" Sulphate, 90 % (ex ship)	..	..	..	per ton	9	15	0
" Muriate, 80 % (do.)	..	..	..	..	8	0	0
Silver (metal)	..	..	..	per oz.	0	2	10¼
" Nitrate	..	..	..	..	0	2	10
Sodium (metal)	..	..	..	per lb.	0	3	4
" Carb. (refined Soda-ash) 48 %	..	..	nett	per ton	5	10	0
" " (Caustic Soda-ash) 48 %	..	..	..	..	4	10	0
" " (Carb. Soda-ash) 48 %	..	..	..	..	4	10	0
" " (Carb. Soda-ash) 58 %	..	..	..	..	4	10	0
" " (Soda Crystals)	..	..	..	..	2	17	6
" Acetate (ex-ship)	..	..	..	..	16	0	0
" Arseniate, 45 %	..	..	..	..	11	0	0
" Chlorate	..	..	..	per lb.	0	0	8¼
" Borate (Borax)	..	..	..	net, per ton	28	10	0
" Bichromate	..	..	..	per lb.	0	0	3¼
" Hydrate (77 % Caustic Soda) (f.o.b.)	..	..	net pr. ton	12	10	0	
" " (74 % Caustic Soda)	..	..	..	12	5	0	
" " (70 % Caustic Soda)	..	..	..	11	5	0	
" " (60 % Caustic Soda)	..	..	..	10	5	0	
" " (60 % Caustic Soda, cream) (f.o.b.)	..	..	..	10	0	0	
" Bicarbonate	..	..	..	..	7	0	0
" Hyposulphite	..	..	..	..	6	10	0
" Manganate, 30%	..	..	..	..	16	0	0
" Nitrate (95 % ex-ship Liverpool)	..	..	..	per cwt.	0	9	3
" Nitrite, 98 %	..	..	..	per ton	29	0	0
" Phosphate	..	..	..	..	15	0	0
" Prussiate	..	..	..	per lb.	0	0	7
" Silicate (glass)	..	..	..	per ton	5	7	6¼
" " (liquid, 100° Tw.)	..	..	..	..	4	5	0
" Stannate, 40 %	..	..	..	per cwt.	3	0	0
" Sulphate (Salt-cake)	..	..	..	per ton	1	4	0
" " (Glauber's Salts)	..	..	..	..	1	10	0
" Sulphide	..	..	..	..	8	10	0
" Sulphite	..	..	..	..	5	15	0
Strontium Hydrate, 100%	..	..	..	..	8	10	0
Sulphocyanide Ammonium, 95 %	..	..	..	per lb.	0	0	7
" Barium, 95 %	..	..	..	..	0	0	5¼
" Potassium	..	..	..	..	0	0	7
Sulphur (Flowers)	..	..	..	per ton	8	0	0
" (Roll Brimstone)	..	..	..	..	6	10	0
" Brimstone: Best Quality	..	..	..	..	4	2	6
Superphosphate of Lime (26%)	..	..	..	..	2	7	6
Tallow	..	..	..	..	27	10	0
Tin (English Ingots)	..	..	..	..	85	10	0
" Crystals	..	..	..	per lb.	0	0	6
Zinc (Spelter)	..	..	..	per ton	17	7	6
" Chloride (solution, 96° Tw.)	..	..	..	..	5	15	0

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2.

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Notices.

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Communications for the Editor, if intended for insertion in the issue, should reach the office not later than **Tuesday**

invited to forward items of intelligence, or cuttings from papers, of interest to the trades concerned.

Reports, and correspondence on all matters of interest to the allied industries, home and foreign, are solicited. Contributors should condense their matter as much as possible, and use only of the paper, and in all cases give their names, not necessarily for publication. Sketches should be on separate sheets.

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Advertisements intended for insertion in the current week's issue should reach the office by **Wednesday morning** at the latest.

SULPHATE OF AMMONIA.

THE past twelve months has not been without interest to the sulphate of ammonia maker. If we turn back to the week ending the fifteenth of May in last year, we shall find that sulphate was sold during that week at the three ports, London, Hull, and Leith, at £10. per ton under usual terms and conditions. Beckton had sold at that price, though it was understood at the time that "outside makes" had changed hands at £9. 17s. 6d. From this time to the end of the year prices had remained practically stationary, though by the middle of August as low a level as £9. 15s. had been touched, yet the steady recovery brought £10. again by December 28th. During the whole of this period, say from May to December, the market was agitated by disquieting rumours—"a quiet market with an absence of demand;" "continental enquiries are very scarce"—but in spite of this, prices hardened in September to £10. 3s. 9d. at Hull and Leith, though the odd shillings were lost again before December had passed away.

Very early indeed in the new year prices again tended upwards until the end of August, when Hull stood at £15. and Leith £15. 2s. 6d., the values at the end of each month at Hull being—January, £10. 8s. 9d.; February, £11.; March, £12. 15s.; April, £12.; May, £11. 15s.; June, £13.; July, £13. 7s. 6d.; August, £15.

We may pause here to consider whether a rise in price from £10. to £15. is likely to be caused by the ordinary laws of supply and demand. Up to and even beyond July 12th prices were still rising, and 61,243 tons had been shipped from the five principal ports of the United Kingdom, the shipments for the corresponding period of last year being 61,552 tons. Figures show no dearth of sulphate, as the total exports from January 1st of the present year to September 20th show 79,058 tons against 76,229 of the previous year: how, then, can such an abnormal rise in prices be accounted for?

A partial reply to the foregoing question may be found in the fact that there is certainly more sulphate being used at home than was the case formerly; that is to say, there is much less sulphate wandering about in search of buyers than there was a few years ago; industrial operations have taken more, and will continue to take more as time goes on; and and though the production of ammonia within certain limits will continue to increase, yet the world is able to consume all that the industrial arts can give her.

We believe, however, that the above explains only in a very minor degree the causes that have led to the enhancement of sulphate values. The real causes lay principally in the fact that most of the dealers had sold forward to their customers on the Continent at prices ruling at the time the sales were made, without attempting, except in a few instances, to cover themselves with the manufacturers of the article. Sulphate in September of last year was standing (dull according to report) at £9. 17s. 6d., and no doubt the speculator considered

he was doing a good thing when he sold for October-March delivery at £10. 2s. 6d., trusting to chance as to the possibility of securing a supply when the time for delivery came round. The time did come, and those makers who had sulphate free were not anxious to sell, and it is an open secret that some of the dealers came off very badly financially, while others made a very good profit out of the misfortunes of their comrades. The fact is, that unlike most other businesses, the sulphate manufacturer is totally ignorant as a rule, of the ultimate destination of the article he produces. As a consequence, he is ever ready to swallow the pill, be it bitter or sugar-coated, prepared for his special benefit by the sulphate speculators; who, moderate in number, vie with each other in offering cheap sulphate upon the Continent, in order to secure for themselves a goodly share of the business, which they are afraid may fall into the hands of competing houses. In this destructive competition they are unfortunately aided by the more timid of the British producers; some small gas-works has perhaps sold for a few months ahead below the market price of the day, which fact is immediately wired round to those quarters where the news is known to have previously had effect, and this, with a report of "no demand," generally produces the desired result. We have now in our mind the case of one large sulphate maker who sold at £11. 10s. October-March delivery, at a time when the market price of the day was £14. 7s. 6d., and who, when remonstrated with, excused his action on the ground that £11. 10s. left him a very fair profit at the price which he had paid for his ammoniacal liquor. It was pointed out to him that as he purchased his gas-water so cheaply, he, at least could afford to be generous, and not be the first to go half way to meet a decline, to the detriment of those who had not been so fortunate in securing a cheap supply of raw materials.

Sulphate of ammonia is one of those few articles that can still be "manipulated," on account of the want of combination amongst the producers of it. About 90 of the leading firms have since 1885 been combined under the name of the *Association of Sulphate of Ammonia Manufacturers*, they represent about 60,000 tons annually of sulphate of ammonia, out of a total make of 160,000. The Association issues a weekly circular to its members, setting forth market reports, prices of sulphate for each day in the year at London, Hull, and Leith, together with the shipments to foreign countries from the five principal ports of the United Kingdom. Many makers of sulphate have excused themselves from membership on account of the smallness of their production; but if they will consider, it will be seen that even if the works made but ten tons per year, the difference between last year's prices and this year's prices would be a very substantial figure; out of which one guinea might be afforded to support an association, which can do no harm, but on the other hand, is capable of an incalculable amount of good. If the producers of sulphate of ammonia were only half as well combined as the "bulls" or "bears," there would be no such thing as sulphate sales six months ahead, without a cover. But just now it suits the speculator very well to keep the producers apart and in ignorance of one another's doings; we therefore recommend to the latter the study of one of *Æsop's* fables—"The Lion and the Bulls."

PERSONAL.—In our columns last week we notified the dissolution of partnership between Messrs. Sutherland and Snelus, analytical chemists, &c. We are informed that Mr. Sutherland will continue to practice as a consulting analytical and metallurgical chemist and assayer on his own account at 28, Victoria-street, London, S.W.

THE CHEMICAL INDUSTRY OF BERLIN

THE following report of the German chemical trade has been prepared by the Berlin Chamber of Commerce and published *Bericht über Handel und Industrie von Berlin*. The report for the previous year will be found on page 206 of No. 306 of this Journal. The year 1892 must be considered as, on the whole, favourable to the chemical industries. The political relations were of such a nature as to ensure a regular and uninterrupted development of trade, whilst the special branch of disinfectants the prolonged epidemic of the created great activity. Profits did not, however, quite keep pace with the increased turnover; the finance of the chemical industries was fact, daily becoming a more difficult problem in consequence of the ever increasing home and foreign competition. The legal enactments as to the protection and insurance of workmen have also all hampering the trade.

It must be recognised that hitherto no difficulties have been raised by the Sunday labour which is necessary in so many branches of chemical work. It will be well from henceforth to remain content with the laws already established for the benefit of the workmen; it must be remembered that these entail considerable expense on the part of the employer, which must all be taken account of in connection with the question of competition.

Although the new commercial treaties with Austria, Italy, Spain, and Belgium have caused serious difficulties in certain branches such as the lake colours, yet, on the whole, their influence has been directly perceptible.

It is to be desired that arrangements may be made with foreign countries by means of which the difficulties arising from high duties may be removed.

The McKinley Bill had a greater influence in 1892 than in the preceding year. Its continuance induced the Americans to commence the manufacture of many articles for themselves which they had previously imported, and consequently the export of German goods to the United States fell off in a corresponding degree.

Ammonium carbonate, for example, is taxed to the extent of 25 cents per pound English, which amounts to over 25 per cent. selling value of the article.

The effect of this heavy tax was to prevent the export of the article, and thus to depress the home price, which gradually fell during the entire year, reaching a minimum of 60 M. per 100 kilo.

Crystallised Sal ammoniac also fell in price, owing to the increased production by the gas works, and was to be had at the rate of 45 M. per 100 kilo.

Sal ammoniac spirit also suffered a considerable fall in value, the technically pure article at a Sp. Gr. of 0.910 was delivered at the gas works at 25 M. per 100 kilo.

Ammonium sulphate remained stationary throughout the year except that during the autumn when the article was temporarily out, the price rose for a short period. The average price was 100 M. per 100 kilo.

Potash found a regular and satisfactory sale. The works never failed to make stock; notwithstanding this the prices remained very steady in 1891, although the most important raw materials, the soda and potash salts, had undergone a by no means unimportant rise.

Borax and boric acid also maintained their position at unaltered prices.

Oxalic acid and its salts experienced a vigorous sale, but the influence of foreign competition was felt continuously, prices having fallen 60 m. per 100 kilo.

Potassium chlorate was much in demand, on account of the increased production, and rose gradually in value by more than 50%, the average price being about 140 M.

Yellow prussiate of potash had a ready sale at unaltered rates.

Silicate of soda again fell in price, so that the returns from the article scarcely yield any profit. The sales, as in former years, remained limited, partly because of the great over-production, because the protective tariffs hinder the export of the article, and partly because of the former vigorous and steady export to the United States of America, which ceased entirely on account of the operation of the McKinley bill.

Soda crystals, in spite of the union of German alkali makers, have been subjected to frequent variations in value, so that transactions produced little profit.

Nitric acid was in good demand but at low prices, whilst *Chili Saltpetre* rose during the year by 1½ to 2 M. per 100 kilo.

Sulphuric acid took a still more curious place in the market. In the East, whilst the production of 60° acid exceeded the demand, there was a steady scarcity of concentrated acid. Notwithstanding this the prices were lower than ever, so that acid of 66° could be bought below 100 M. per 100 kilo., including package.

The tar industry suffered from the general stagnation of trade more than in the preceding year. The sale of most of the articles of manufacture was satisfactory, but only obtained by lowering prices.

continued to fall in value, as in the closing months of 1891; it gradually fell from 60 M. at the commencement of the year, and then during the last few weeks rose again to 50 M. per ton.

Al and *Xylol* remained low in price, and were in but little demand. There was, however, a slightly increased enquiry for the red article towards the close of the year.

Creosote fell in the first nine months by 25%, but gradually recovered, so that at the close of the year it was not much lower than beginning.

recovery in the prices of the more important tar products is due to the union of the English tar distillers, in order to prevent further ruinous fall in prices. It is to be hoped that their efforts will be successful, since no one, not even the purchasers, can wish continuance of such excessively low and variable prices.

Thalene, in spite of a brisk demand, fell 15% in value during the

year. *Al* and *Cresol*, especially the latter, were in great demand on account of the cholera, and experienced an improvement in price. The epidemic passed away there was a temporary return to normal prices, but it was found that the stock of *cresol* had been depleted, whilst the demand for it as a disinfectant continued. As a result of this and the union already mentioned, both articles rose again towards the end of the year, phenol to a slight extent, *cresol* to a greater degree.

The year 1893 has opened with a very noticeable dulness of trade, and is to be hoped is only a result of the extreme cold of the winter.

The unfavourable weather of the winter months made itself felt in another way, since the railway service was rendered extremely irregular at the very time when it was most in demand could only furnish a small amount of work. It is greatly to be desired that this should be in some way obviated.

Special colouring matters, *Aniline* and similar products were in greater quantity by nearly two million kilos. than in the corresponding year, but the course of the market for these articles was less quiet. Most of the crude products and colouring matters needed but slight variations in price. The unfavourable conditions of the textile industries at the commencement of the year naturally had a depressing influence on the colour market, whilst later on renewed activity in this important branch of industry gave rise to a certain amount of improvement.

It must again draw attention to the unfair system of the Swiss, who not grant patents for the protection of chemical inventions and discoveries, and who can therefore make use of German discoveries at any cost, and thus compete with the originators of the new processes. The great sacrifice made by the German firms, maintenance of costly research laboratories, is directly to the disadvantage of the Swiss manufacturers, who are enabled, without any compensation, to make practical use of all German improvements. This is a place for further discussion of this question, but the German Government should make every endeavour to protect their home industries as far as possible from such unjustifiable competition.

The trade in intermediate products of the colour industry, such as *Al*, was not satisfactory. The demand for these articles maintained the level of the previous year, but in spite of the lowering of prices fresh competition was commenced both at home and abroad, so that existing over-production was greatly aggravated, and further depression of the selling prices followed, while the crude products did not fall to the same degree, and even in some cases rose.

The general condition of the trade in non-poisonous chemical and dye colours scarcely underwent any modification during the year. The stagnation which set in at the close of 1891 was maintained throughout the whole period, so that the sale could scarcely be kept up. Competition was exceptionally keen, so that prices fell still further and there was, moreover, no improvement in credit transactions. As a result of the new commercial arrangements, the trade with Germany did not experience any improvement, whilst that with Switzerland was unfavourably influenced. Although the tariff on tar colouring matters exported to Austria has been considerably lowered, yet the duties, which contain the colour in a combined form, are unchanged by this concession. The reduction was, moreover, insufficient to bring about any marked improvement in those articles which were affected by it. The tariff on *baryta white* for example was reduced from two to one guilder. This reduced tariff is, however, still 25% above the value of the article, so that even under the new conditions the export of any considerable quantity is impossible. The relations with Germany are incomparably more unfavourable, since on most of the articles in question the tariff has been increased from 7 to 20 francs. An increase in the duty of course greatly adds to the difficulties of the trade. No amelioration has been granted in the treaty to the lake manufacture, which has many difficulties of its own to struggle with. It is greatly to be hoped that in future treaties (with Russia,

etc.) this branch of industry may be taken into favourable consideration. The export to the United States of America has maintained its old level, since the colouring matters in question are only slightly or not at all affected by the regulations of the McKinley Bill. The trade with England has also remained at the old level, whilst that with Holland and Belgium has fallen slightly because the competition of the Rhenish and other works is more keenly felt. It must be pointed out that the colour manufacture has suffered from the numerous syndicates and unions to which so many of the suppliers of raw materials belong. It is no doubt permissible to come to the aid of a depressed industry, labouring under over-production, by means of syndicates, but it is just as certainly unjustifiable when the only object of a syndicate is to artificially and without due cause raise the price of materials. This is the attitude taken by the syndicates for *alum*, *alumina*, *Prussian blue* and *chromium salts*. The evil influence of the first two of these is especially clear when we remember that the price in England is 40% below that in Germany, and that, therefore, the increased cost of materials can not fail to be harmful to the German export industry. This evil can only be combated by lowering the import tariff, under the protection of which such artificial inflation of price is alone possible.

The price of pure *methyl alcohol*, 135 M., has not appreciably changed from that of the previous year. The improvement in wood spirit, which was noticed towards the close of 1891, was maintained throughout the year, although the English demand fell off in the latter half of the period on account of the fall in price in the home market. The demand for methylating materials (2 parts of wood spirit and 1 part of pyridine bases) was considerably greater than in the preceding year, so that the stocks of *wood spirit* have not increased.

Acetic acid. The quotations for acetate of lime for America kept at the level of last year (1891), but afterwards rose from 18 M. to 20 and 21 M., without any corresponding change taking place in the position of acetic acid.

The most vigorous movement of prices in an upward direction took place with regard to disinfecting agents, on account of the outbreak and spread of the cholera epidemic. The violent character of the epidemic in Hamburg soon produced a scarcity of disinfectants; the demand for disinfectants, however, ceased as suddenly as it commenced, so that unpleasant conditions for the intermediate dealers could not fail to exist.

Bromine. In October, the Stassfurt manufacturers succeeded in making an arrangement with the American firms by which mutual competition was obviated. The result of this agreement was that the old, higher price for bromine was re-established, the effect of which was to somewhat damp the ardour of purchasers of bromine preparations.

Carbolic Acid. From the causes already referred to an energetic upward movement of prices took place at about the middle of the year, the article advancing from 4½d. per lb. to 7¼d. As soon as the cholera scare was over, however, a considerable decline set in.

Glycerine maintained the level of 1891. This article has now taken an almost unprecedentedly low position. The purified varieties are in fair demand.

Iodine experienced no alteration in value, so that the precarious trade in iodine preparations could be carried on in safety. It is not yet known whether all the former supporters of the iodine syndicate have joined the new syndicate.

Potassium permanganate, which was much sought for during the cholera time, and enjoyed a corresponding rise in value, fell after the expiration of the epidemic almost below cost price, on account of the increased production and accumulation of stocks by the intermediate dealers. Towards the close of the year prices gained ground a little, owing to the fear that the epidemic would return in 1893.

Potassium cyanide was in somewhat increased demand, owing to the extended use of this article for the extraction of gold and silver in the mining districts abroad.

STOPPAGE OF GLASSWORKS.—Owing to the advanced price of fuel there have been important stoppages in the glass trade at St. Helens. At the works of Messrs. Cannington Shaw and Co., glass bottle manufacturers, 350 men have been stopped; and so has one of the houses in the Jubilee Glassworks of Messrs. Pilkington Brothers. The latter stoppage affects a large number.

SMOKE PROSECUTIONS.—A number of summonses had been set down for hearing at the Manchester City Police Court on Wednesday against firms for causing a nuisance by allowing an excessive quantity of smoke to be emitted from the chimneys of their works. Mr. Rook, of the Nuisance Department of the Corporation, asked the permission of the bench to withdraw the summonses. The Sanitary Committee, he said, were cognisant of the difficulty that coal consumers were in owing to the difficulty of obtaining proper supplies, and they thought that under the circumstances the prosecutions should be dropped. The magistrates assented to the suggestion. An influential deputation of manufacturers waited on the Sanitary Committee of the Corporation last week in reference to this matter, of which the above action is the practical outcome.

Correspondence.

"We do not hold ourselves responsible for the opinions expressed by our correspondents."

ANSWERS TO CORRESPONDENTS.

W. S. C. & Co.—You will have to get it from some such source we feel sure. You might write stating exactly what you want to The City Stamp Co., 44, Snow Hill, London, E. C. But state exactly what it is you are seeking, as your last threw quite a different light on the matter.

C. C. Co.—Do you wish blocks in this issue returned, or are they to be retained for further use?

W. G.—It has been received and duly acknowledged.

J. E. C.—Kindly send us a copy.

J. P. C.—We are trusting to hear from you soon.

E. A.—We are expectantly waiting to hear from you before going further in the matter.

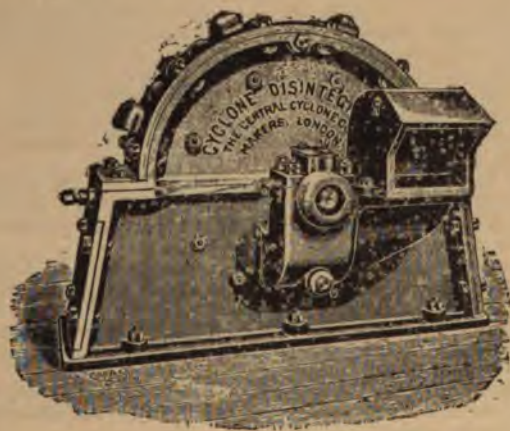
J. M.—Thanks for letter and information.

J. T. (Syracuse).—We thank you for notification

THE CYCLONE DISINTEGRATOR AND PULVERIZER.

THE Central Cyclone Company, Limited, has recently remodelled its disintegrating and pulverizing machinery in a manner worthy of the attention of those desiring to secure the most efficient apparatus for such purposes. Our illustration shows the disintegrator we have lately had the privilege of inspecting, and which is, in our opinion, vastly superior in design to most other disintegrators.

This pattern of machine is made in five sizes, having approximate outputs varying from 3 cwt. per hour in the smallest size to 7 tons per hour in the largest. The approximate H.P. necessary for driving varies from 2 H.P. for the smallest size to 24 H.P. for the largest, the revolutions of the beater shaft being about 3,000 per minute for the former and 1,200 for the latter.



The disintegrator is constructed of cast-iron, except the rotating parts and concave bars, which are of hard steel; the shaft running in phosphor-bronze bearings five diameters long, fitted with self-lubricating devices and oil-catchers, which provide a perfect system of lubrication so essential in these high-speed machines. The side ratchets are of a special oblique form, made of white chilled iron, and being affixed to the inner walls of the machine by counter-sunk bolts, are easily and quickly renewed.

The beaters are extremely perfect, the arms are interchangeable and reversible, and so specially constructed that they cannot, with reasonable care, become detached from the boss, a source of accident in some machines. Each machine is supplied with a set of screens or sieves, so arranged that when the screen bars are worn out the frame can be fitted with new bars at a nominal cost and in the course of a few minutes. The fixing of the screen is simplicity itself and effected with the greatest ease. The special use of this disintegrator is the reducing of all non-silicious substances, such as dry and green bones, friable minerals, chemicals, superphosphates, grain, fibrous vegetable substances, textile materials, &c.

The Cyclone Pulverizer has also recently undergone a complete reconstruction, the old form being replaced by Straker's new design. The old principle of the two rotating shafts has likewise been abandoned, and now but one spindle is employed, thus necessitating only one driving band, and requiring only about half the power to run it. The material to be ground is fed into the iron hopper of the machine, and enters through an adjustable shaking feed-gear into the inner chamber where it is instantaneously reduced.



When the material has been reduced, the air draught, generated by the exhaustor, forms the sole medium for conveying the finely divided matter to the depositing chamber, there being no residue to deal with, as everything that enters the feed hopper is ground up in one process, which is a special feature of these machines.

The advantages of a mill which reduces dry solids to an impalpable powder at one operation, without the intervention of sieves or screens, do not require to be dilated upon; and when coupled with other advantages such as absence of clogging, and dustless operation, we feel sure that most of our readers will not regret our having brought such a machine under their notice.

A NEW EXPLOSIVE.

EXPERIMENTS were made last week with another smokeless explosive which is the invention of M. l'Abbé Schaeffelin, and called after him "Schnebelite."

The basis of this powder is chlorate of potash, a substance which has hitherto been used only for the manufacture of detonating compounds, on account of the facility with which it can be detonated by percussion or friction when mixed with some inflammable material such as sulphur, or black sulphide of antimony. In fact, the mixture of chlorate of potash and sulphur was used in the earlier patterns of percussion caps for muskets, and the mixture with black oxide of antimony is still employed in the ordinary friction tubes with which the charge in muzzle-loading guns is usually fired. The violent detonating property of these mixtures is due to the fact that the chlorate parts with its oxygen at a much lower temperature than nitrate of potash (the oxidizing agent in ordinary gunpowder)—and also to the peculiarity that, when decomposed by heat into oxygen and potassium chloride, the change is attended with evolution of heat, while in most cases of chemical decomposition heat is absorbed. The chlorate of potash is mixed with pure cellulose, or woody fibre, such as is used for the manufacture of gun-cotton or Schultze powder.

Though the trials which have so far been made afford no criterion of the value of this powder as a propelling agent in comparison with the powders at present in use, they are, nevertheless, interesting, inasmuch as they prove conclusively that the inventor has succeeded in producing a gunpowder with chlorate of potash as its base which, notwithstanding the generally accepted opinion of the violence of compounds in which this substance is used, appears to be completely under control. When fired from a new magazine rifle the recoil was very small, while the penetration of the bullet through both wood and steel plates was such as to show that the velocity obtained was satisfactory, though there was unfortunately no means of measuring it. The charge employed was about 20 per cent. greater than that of service powder, and it is claimed

pressure on the barrel of the rifle is very small. The smoke and very quickly disappeared, while the fouling of the bore slight. The claim to non-heating of the barrel was not, however, as after the firing of ten rounds with rapidity the barrel in the chamber was decidedly heated, though it could be handled with comfort.

To test the safety of this new explosive a quantity coarsely granulated into fine powder in an ordinary coffee-mill; another was struck by a heavy hammer on an iron anvil, and when this powder was ignited by a match and burned quietly away. A charge of small shot was fired into a box containing about a pound without producing any ignition or explosion, and was done to four small cylinders (for use in blasting), the fragments and scattered powder being in each case collected and the open without any explosion.

As only preliminary and inconclusive, these experiments indicate, the *Times*, that this explosive has several qualities which render it suitable for use as a propelling and a destructive agent, but a more exhaustive and detailed experiments are necessary before a decided opinion can be arrived at. The safety and facility of use, and its cheapness, are in its favour; some of this was made in the morning after the visitors arrived on the morning only a few minutes, and this same powder, after being a couple of hours, was fired from a shot gun in the afternoon, with excellent results as to penetration.

THE SODIUM NITRATE COMBINE.

The permanent Nitrate Committee have taken a very important step in regard to the policy of restricting production, which has been now for three seasons. The combination among the producers ended, towards the close of last year, to March, 1894, and the Committee has now decided that the arrangements shall end at that date. As March next year had been already the limit of the present policy of restriction, this resolution may be some of little positive moment. But it was well understood policy would be adhered to until the nitrate market was in a firm and stable condition to make the removal of restriction of nitrate are well above the rates current a year ago, and in those of two years ago; but what is of more importance is the shortness of the stock of nitrate now held. This is not the case, and stocks are never large at this season of the year; but a reaction will soon be beginning on an active scale. Just now in the United Kingdom and continental ports is, according to *Financial News*, estimated at 76,000 tons, as compared with 105,000 tons a year ago and 150,000 tons at the end of August, 1891, quantity afloat is 150,000 tons, against 200,000 tons last year. The position, therefore, is very strong, and in view of the smallness of the supply, it is not surprising that forward prices show a decided tendency to rise. So soon as competition begins, the remnant of the accumulated stock in Europe will disappear, and then next the producers will have control of the market. With the price brought down to an almost irreducible minimum, it will not be profitable for the producers to increase the supply, but it would be incumbent on them to do so. As it is, the restriction of output is to be slackened in order to let the supply keep pace with demand. The original programme for this year was that each of the combinations should only work five months; but this had been extended to six months, and, again, to seven. The removal of restriction has thus taken place by degrees, and in accordance with the elements of trade; so the resolution (*C. T. J.* 331, p. 197) to the industry of all restraint after March is only the logical result of the gradual relaxation of the severe limits previously placed upon it. It is, in fact, a recognition that the object of the combination has been gained, and the nitrate companies which suffered so much from the excessive accumulation of stocks are now to be enabled to make up some of their losses. There is little fear of a repetition of the former blunder of flooding the market with nitrate of soda, as it is so scarce and so dear in Tarapacá that over-production is impossible. The effect of the change will be to enable every producer to make full use of its natural advantages, and the profits which self-denial during the last three years has been thinning.

EXPORT OF CHLORATE OF POTASH.—In answer to a query whether chlorate of potash would be treated as contraband if the civil war culminates in a blockade, the *Liverpool Journal* states that in 1855 this country prohibited the export of potassium to any place north of Dunkirk, or in the Mediterranean of Malta, and this would form a precedent for the treatment of this compound as contraband.

THE BRITISH ASSOCIATION.

CHEMICAL SECTION.

(Continued from Page 197.)

The most important of the remaining proceedings of this section was the discussion opened by Professor H. B. Dixon, of Owen's College, Manchester, on "Explosions in Coal Mines," with particular reference to the dust theory. In reference to this matter, he said the question was one that had attracted great attention, and mining engineers had shown themselves ready to welcome and make use of the results of the researches of chemists and others. Explosions in mines were attributed to two substances—fire-damp and coal dust. That mixtures of fire-damp and air could produce disastrous explosions was known, and many investigations had been made on the rate of transmission of the explosion and on other points. Many held that mixtures of coal dust and air were explosive and a source of great danger, whilst others contended that, whilst such a mixture was inflammable, it was not explosive, and the flame died out after travelling a short distance. Another view was that if air containing fire-damp, in quantity even too small to be detected by the ordinary method, should in any way become mixed with fine coal dust the mixture was highly explosive and dangerous. Referring to the history of the subject, he pointed out that Faraday and Lyell first recognised that dust might be a fuel. As early as 1864 it was held that coal dust might be a source of explosion if set on fire by an explosion of fire-damp, and in 1870 to 1875 many small explosions took place in France which were attributed to the explosive properties of dust alone. Vital showed that a blown-out shot might raise a cloud of coal dust, and that if this dust were very dry and fine it would explode, the violence being very greatly increased by the presence of fire-damp. Galloway, in 1876, made experiments that led to the conclusion that coal dust mixed with air was not inflammable *per se*, but became explosive when mixed with 1 per cent. of fire-damp. Later experiments, however, led him to the conclusion that certain kinds of coal dust were explosive when mixed with air alone. The explosion at Seaham Colliery was in all probability mainly, if not entirely, due to coal dust, since the explosion did not travel along those galleries in which there was no dust or where the floor was damp. This explanation was, indeed, the only one that was in agreement with all the facts.

Reference was made to the experiments of Sir Frederick Abel, which seemed to show that a mixture of fire-damp and air was inflammable in presence of non-combustible dusts, such as fine sand. In 1882 the Chesterfield Committee came to the conclusion that, although mixtures of coal dust with air alone were inflammable, there was little or no concussion, and the flame did not travel any great distance. The combustion of the dust alone was never of an explosive character, but the presence of coal dust was capable of greatly increasing the explosibility of small quantities of fire-damp. A Prussian committee, in 1887, practically confirmed Galloway's results, and also found that the use of what are called high explosives might give rise to dust explosions. These conclusions were disputed by a French committee, and Mallard and Le Chatelier contended that dust and air, though inflammable, were not explosive, and did not become explosive unless mixed with more than 5 per cent. of fire-damp. These results were not in accord with those of other observers. An Austrian committee came to the same conclusions as Galloway and the Prussian committee, but pointed out that different coal dusts differed greatly in inflammability, and that attention should be given to the nature of the explosives used for blasting, and especially to the character of the fuse. The statement that explosions did not travel through damp parts of a mine was confirmed, and it was recommended that explosions should be localised and isolated by always keeping certain sections of the mine damp. Recent experiments by Mr. Hall showed that different coal dusts varied enormously in their degree of inflammability, and that mixtures of some dusts with air were violently explosive if ignited by means of a large flame, such as that produced by a blown-out shot, or by a small explosion of fire-damp. The great variation in the properties of coal dusts probably accounted for the difference between the reports from different districts. Whether it was true that coal dust and air alone were explosive, or that the presence of small quantities of fire-damp was essential, must be shown by further investigations on the nature of the dust from different mines, the methods of detecting very small quantities of fire-damp, the degree of danger attaching to the use of different explosives, and the efficiency of various methods of laying the dust in mines by water spray, etc. The discussion was continued by Professors Galloway, Thorpe, and Merivale, and others, from which it appears that though it is still a moot point with some whether fire-damp is or is not essential to the explosion of mixtures of air and coal dust, the general consensus of opinion seems to incline towards deciding the question in the negative.

DETECTING FIREDAMP.

Professor Frank Clowes, of Nottingham, read a paper on the appli-

cation of the hydrogen flame in an ordinary miner's safety lamp to accurate and delicate gas testing. He said that the "flame cap" or halo seen in the dark above a pale flame in air containing combustible gas served as the most rapid and practical means of detecting the presence of inflammable gas or vapour in the air. The method had been in common use by the miner, but the oil flame, which he used for the purpose, was wanting, not only in delicacy, but also in accuracy. It would not readily detect the presence of less than 3 per cent. of fire-damp in the air, whereas for modern purposes it should detect less than 0.5 per cent.; and, owing to the variation in the size and adjustment of this flame when applied to testing, its indications were very variable, and were not of a standard character. Many objections existed to the employment of a separate alcohol lamp carried for testing purposes. None of these applied to the use of the hydrogen flame, especially when it was applied in an ordinary safety lamp burning oil from a wick in the usual way. The hydrogen flame was the most delicate indicator known, and it was applicable always of uniform size, giving standard and invariable indications. The author's early work consisted in measuring with accuracy the height and noting the appearance of the flame cap appearing over the standard 10mm. (—0.4in.) hydrogen flame. The flame was exposed for this purpose to air containing known percentages of gas in the "test chamber" specially devised for the purpose. The statement, previously made, that the hydrogen flame was the most delicate gas-testing flame known was fully confirmed by comparing its indications with those yielded by an alcohol flame and by a reduced oil flame. The author had next directed his attention to applying the hydrogen flame in a practical way to the detection and measurement of minute quantities of fire-damp in the air. This was ultimately effected by supplying the hydrogen from a small steel cylinder containing the gas in a compressed condition. The cylinder could be readily carried in the pocket, and, when necessary, it could be immediately attached to the ordinary safety lamp, and made to furnish the standard hydrogen flame burning at a jet in the lamp. The gas was kindled at the jet by the oil flame, which was then extinguished. The accurate estimation of proportions of fire-damp in air varying from 0.2 to 3 per cent. was rapidly and easily effected by the standard hydrogen flame. Higher percentages were estimated either by reducing the size of the hydrogen flame, or by employing the oil flame diminished in size until it became non-luminous. The small pocket cylinder was under a pound in weight, and when freshly charged, by being connected with a store cylinder at 120 atmospheres' pressure, it carried a store of gas sufficing for over 100 tests. This combined lighting and testing safety lamp had been found to be thoroughly practical in its nature after lengthened use in several collieries, and it surpassed in convenience all the delicate and accurate mine gas-testing apparatus yet described. The lamp, in a modified form, had been adapted to detecting and measuring petroleum vapour in the air.

The report of the committee on "Isomeric Naphthalene Derivatives," was presented by Dr. Tilden, and other papers were communicated, among which may be mentioned two by Dr. Kohn, of Liverpool, on "The Application of Electrolysis to the Qualitative Detection of Metals," in which he showed that the method made it possible to detect with ease very minute quantities of such poisonous metals as antimony, lead, copper, mercury, and arsenic, even when mixed with organic matter, and "The cause of the red colouration of phenol." Dr. Bedson read a paper on the "Gases enclosed in coal dust." Dr. Nicol dealt with the "Action of permanganate of potassium on sodium sulphite and Thiosulphate"; Dr. Rideal with the "Application and sodium peroxide to water analysis"; and Professor Smithells with "The temperature and luminosity of gases."

CHEMICAL APPARATUS.

In addition to the apparatus already referred to as being exhibited, mention must be made of Messrs. Baird and Tatlock's exhibit of apparatus for gas analysis, Boverton Redwood's apparatus for testing the viscosity of oils used for lubricating purposes, Gray's improved apparatus for ascertaining the flashing point of heavy mineral oils, Leffman's centrifugal machine for testing milk, and Richmond's milk scale which is a kind of slide rule for calculating the composition of milk from the results of analysis. Professor H. B. Dixon exhibited one of Berthelot's calorimetric bombs now exclusively used for accurate determinations of the heat of combustion of organic compounds. Mr. J. R. Gregory showed some very convenient cabinets of specimens for illustrating the properties of soils, and agricultural geology in general. The Cambridge Scientific Instrument Company showed section-cutters and various delicate pieces of apparatus used in physiological experiments, and Professor Bohr, of Copenhagen, showed an apparatus for examining the gases produced in respiration. Perhaps the most attractive feature of the exhibition in this section was the demonstration of glass-blowing given twice daily by Herr Fitz Zitzmann, of Wiesbaden, who made various forms of scientific apparatus, as well as articles resembling the old Venetian glass.

Legal Intelligence.

GLASGOW COURT OF SESSION.

(Before Lord Kyllachy.)

NORTH BRITISH RAILWAY COMPANY v. R. AND J. GARROWAY

Last Wednesday the following judgment was issued by his Lordship in the action raised by the North British Railway Company against R. and J. Garroway, chemical manufacturers, Camlachie, Glasgow, payment of £3,625. 15s. 4d. By agreement between the parties, dated 1880, it was agreed that the whole of Messrs. Garroway's rail traffic to and from their works should be conveyed by the routes of company at the rates in force from time to time to and from Camlachie Station, and not higher than the rates in force by any competing railway route. The pursuers averred that the sum sued for was due to them on account of the carriage of goods, and the defenders pleaded that the deductions, rebates, and counter claims to which they were entitled were largely in excess of the sum sued for. His Lordship found that the pursuers were not and are not entitled during the currency of the agreement to charge to the defenders for the traffic passing between Camlachie Station and the stations of the Glasgow and South-Western Railway Company outside Glasgow or the stations of the Caledonian Railway Company north of Greenhill, rates higher than those in force on the competing routes; that the pursuers are not entitled to charge the defenders higher rates than those in force and exacted by pursuers from other traders; that during the period embraced by the account sued for the defenders had been charged on traffic between Camlachie and Ayr and Irvine and other stations on the Glasgow and South-Western Railway rates exceeding the rates chargeable on said traffic if the same had been carried by the Glasgow and South-Western Company, and had been loaded or unloaded, not at Camlachie but at the College or other stations of the Glasgow and South-Western Railway in Glasgow, such overcharges amounting to £495. 18s. for which the defenders are entitled to credit; that the defenders failed to prove that they are entitled to any rebate in respect of traffic carried in their own waggons, other than tank waggons, in excess of the rebate allowed by the pursuers, and that they have failed to prove they are entitled to any rebate in respect of vitriol carried in owners' tank waggons. His Lordship further remits to Mr. J. Ivory, C.A., to prepare a correct state of accounts between the parties and in the meantime reserves the question of expenses, and gives leave to reclaim.

In his opinion his Lordship states that the complaint resolves itself into this, that the pursuers have been in use to charge for traffic between their Camlachie Station and Ayr and Irvine, rates—formerly 15s. 4d. per ton—in excess of the rates charged by the Glasgow and South-Western Railway Company for the same traffic if loaded or unloaded at College-street Station. There can be no doubt, he says, that the pursuers' company do have a route from Glasgow to Ayr and Irvine, and they receive goods at Camlachie, carry them by their own line to Glasgow and South-Western Company's College-street Station, thence forward them by the Glasgow and South-Western line to their destination. No doubt the portion thus traversed of the pursuers' line is but small; in fact, the distance between Camlachie and College Station is only about six furlongs. But the interest of the pursuers to accept and cultivate such traffic is this, they have in the first place a certain mileage charge for those furlongs, and in the next place a certain terminal charge for loading or unloading and other services at Camlachie. The defenders are bound to send their whole traffic by the pursuers' routes and are not at liberty to send their traffic to Ayr and Irvine from the College Station. If they did so the Glasgow and South-Western Railway Company would have the whole mileage and the whole terminals, and the pursuers' company would be proportionately prejudiced. In these circumstances it appeared to follow that as regarded the journey in question the pursuers and the Glasgow and South-Western Company are substantially in competition, and that according to the true meaning of the agreement the defenders are not bound to pay more for their traffic booked with the pursuers to and from Camlachie than if it had been booked with the Glasgow and South-Western Company from College Station. The same consideration applied with respect to traffic booked by the pursuers for stations on the Caledonian Railway north of Greenhill. The next point was as to the meaning to be attached to the word "traders" in the agreement. The pursuers said it meant competing traders, and the defenders contended that the expression was general, and meant all traders. Of these two contentions His Lordship has preferred the latter. The next point was as to the force of the expression, "the rates in force from time to time, exacted from traders whether under contract or otherwise." The pursuers maintained that no rate could for the purpose of this case be appealed to unless the defenders could show that such rate had actually been paid, and paid on traffic passing to and from Glasgow.

ip could not accept this construction. The rate, it is thought, if it is a rate at which the railway company undertakes to and it is exacted so long as the company do not carry for a less. The words "and exacted" were exegetical, and were introduced in the defenders' favour. They were added to make it clear that the rate was the actual rate, not merely the nominal rate, so that the defenders should have the benefit of the actual rate, if that was in less than the nominal rate. The only other question on the action of the agreement was as to the effect of what had been "the greater distance" clause. His Lordship cannot discover it is of much consequence, but thinks it is impossible to read it if the defenders read it, namely, that if on any part of the pursuers' the pursuers are found to have given to any trader a lower rate than they charge the defenders, the defenders are entitled to the benefit of the lower mileage rate. What seemed conclusive in this reading was what the defenders seemed at one time to have held that the comparison of rates under the agreement was a comparison with respect to the same journey. On no other reading the agreement be workable or sensible. With respect to the facts, his Lordship gathered that the defenders did not now maintain that they had made out a case entitling them to any concession in respect to tank waggons. Neither had their counsel adduced evidence to enable his Lordship to hold that the allowance by the pursuers in respect of ordinary traders' waggons was ineffectual. The real and more important controversy appeared to refer to the question whether, prior to 1888, the rates in force acted for vitriol in carboys was the schedule B rate in the oil company's agreement, or was the rate plus an addition of 50 per cent. On that matter his Lordship's decision is in favour of the defenders.

THE GAS SUPPLY OF LONDON AND LEEDS.

LONDON.

The quality of the gas supplied to the City of London for the week ending September 16th, 1893, was on the whole good. According to the report of Mr. W. J. Dibdin, chemist and superintendent gas examiner to the London County Council, the tests made at various testing stations showed one deficiency in illuminating power, and against the South Metropolitan Gas Co. The following have been prepared from the report, and show the average composition of the gas calculated on the mean test:—

Company.	No. of districts tested.	Illuminating power (in stand. sperm candles).	Sulphur. Grains in 100 cb. ft.	Ammonia. Grains in 100 cb. ft.	Sulphuretted hydrogen.
		Mean average.	Mean average.	Mean average.	
Light and Coke Co.	14	16.32	9.65	0.38	Nil.
Metropolitan Gas	6	16.51	10.25	0.58	Nil.
Local Gas Co. ..	2	16.50	9.8	0.65	Nil.

The standard gas supplied by these companies should have an illuminating power of 16 sperm candles, and contain not more than 22 of sulphur and 4 grains of ammonia per 100 cub. ft. of gas, on an average of three days, with a pressure of one inch between sunset and night, and six-tenths of an inch between midnight and sunset.

LEEDS.

According to the report of Mr. T. Fairley, F.I.C., gas examiner, the proportion of total sulphur contained in the Leeds gas for the month ended September 14th, 1893, has averaged 19.32 grains per 100 cubic feet. The following are the results of tests made at the expressed in grains per 100 cubic feet.

Place.	Date when Tests were made.		Total Sulphur.	Ammonia.	Carbonic Acid.	
	Aug. 1893.	Sept. 1893.			Weight.	Volume.
By Lane...	16, 24.	2, 7, 13.	18.42	7.17	24.45	0.03
Portley	17, 25, 31.	3, 14.	20.96	1.01	32.60	0.04
Street	15, 26.	1, 8, 13.	16.54	0.35	32.60	0.04
at Works ..	..	..	19.32	3.67	32.60	0.04
at East ..	..	..	18.24	4.68	32.60	0.04

During the month the average illuminating power of the Leeds gas at 17, East Parade, the tests being calculated to a uniform condition of 5 feet per hour, and corrected for variations in temperature pressure to a temperature of 60° Fahr. and a barometric pressure of 30 inches, has been in standard candles (burning 120 grains of gas per hour):—Standard argand, 24 holes, 19.0; standard batswing, Sugg's illuminating power meter, 18.9.

Our Book Shelf.

MEASUREMENT OF LIGHT AND COLOUR SENSATIONS. By J. W. Lovibond, F.R.M.S. 129 p.p., with Index, Appendix, and numerous Coloured Plates and Charts. London: G. Gill and Sons, 1893. 7s. 6d.

This work, which is nicely got up and well printed, represents the work of Mr. Lovibond during the past twenty-five years on light and colour in connection with the production of his colorimeter or "Tintometer," and his efforts to formulate a scientific nomenclature for colour. The subject is one of great interest, and the results are applicable in many ways. The principle of his perfected method consists in adopting standards of graded coloured glass in an apparatus designed so as to cut off side lights and give a direct view without the aid of lens, prisms, etc.

The earlier portion of the book deals with the apparatus employed and the light suited to the work. The definition of white light and the standard adopted are then discussed, and the five laws on which the nomenclature is based are enunciated. The system which is elucidated sets forth a nomenclature which is capable of defining any colour by means of two colour terms and one light term. A new method of charting colours on lines similar to the latitude and longitude of ordinary charts is also described. Through the agency of the Tintometer measurements of colour sensations are effected by two separate beams of light passing through the instrument, one of white light and one from the coloured object. The white light is then disintegrated by means of the standard slips until the colour agrees in tint and depth with the beam from the coloured object, the composition of the latter being read from the degrees of disintegration indicated by the numerical terms of the graded standards. In this manner the composition of a measured colour is obtained in verbal definition, as an equation one-half of which is a statement of the various glasses used to disintegrate the light, and the other half a statement of the composition of the transmitted light, which in conjunction with the unchanged white light co-operate in the production of that particular colour sensation. The last chapter deals with the measurement of colour blindness, and records some interesting facts concerning the variation in colour perception between the two eyes of the same person.

The appendix aptly shows the virtue of the foregoing, and its practical scientific bearing. One matter of great interest is the comparison of standards for Eggertz's test of the carbon in steel by means of the tintometer, whereby it is shown that the remarkable variations in the standards used can be avoided by using a permanent standard, and that good results are obtainable with the tintometer. The applications of this apparatus to the testing for lead in water; the influence of time, etc., upon the colour given by Nessler's solution with ammonia, and also the comparison and valuation of flours, are all indicated by the experiments which have been made by various gentlemen in these directions. By way of a frontispiece there is a photograph showing a collection of the apparatus necessary to form complete sets for dyers, brewers, and millers. It is quite impossible to give an abstract of a work in which charts and tables play such an essential part, but as an attempt to define the laws which govern the normal visual powers of appreciation of light and colour so as to further investigate phenomena arising from complex conditions, the work is a success, being systematically concise and fit for unreserved recommendation to those who are interested in, or influenced by, difficulties in the measurement of colours.

CEMENTS, PASTES, GLUES, AND GUMS. By H. C. Standage. 156 p.p. Index. London: Crosby, Lockwood, and Son, 1893. 2s. 6d.

This book consists of a collection of some nine hundred recipes for the use of manufacturers, workmen, amateurs, and others. The recipes include acid and waterproof cements, building cements and plasters, cements for china, glass, leather, wood, stone, metal, earthenware, and marble. Also general cements for the purposes of the chemist, naturalist, and electrician. Many of the receipts are repeated under various headings, the arrangement of which is good. In his preliminary remarks on the general inefficiency of the majority of receipts to be found in trade journals, the author apparently overlooks the fact that, in the majority of cases, such untrustworthy recipes are compiled from works of a precisely similar nature to that under notice. Recipes abound, but ones that work well in practice, or without inordinate demands upon time and patience are not so plentiful. One of the most useful parts of the book is that devoted to hints on the application of glue and cements. They vindicate our former statement, inasmuch as attention is drawn to the drawbacks attendant upon the use of certain classes of cements owing to the time they take in setting or the like. It would be hard indeed to faultlessly produce a book of this nature, but this work may be recommended as being freer

from faults than most of those we have met with. The author vouches for the efficacy of all the recipes, inasmuch as he states that those which he has not actually used he has critically examined. This says a great deal for the work. There is a good index which might perhaps have been made still fuller, and the repetition of receipts avoided. The selecting and presenting of only such receipts as are undoubtedly suitable to a particular purpose, is the only way to remove the popular prejudice which prevails in many quarters against recipes. The idea of a general panacea is to be carefully avoided. This book covers a lot of ground, and should be found useful for frequent reference by many in all branches of trade, as well as in offices and warehouses.

Trade Notes.

WIDNES TAR.—A contract for one year has, we learn, been entered into by Messrs. Hardman and Holden, of Miles Platting, Manchester, for the tar from the gasworks of the Corporation of Widnes.

THE JOULE MEMORIAL.—The statue of the late Dr. J. Prescott Joule, which is to occupy a site in the Town Hall as a companion to that of Dr. Dalton, reached Manchester last Wednesday.

A STEEL ROPE BRIDGE.—Instruct'ons have been received by Mr. L. Harper, of Aberdeen, from the Duke of Sutherland, to construct a suspension bridge of steel rope over the river Trent in Staffordshire.

NITRATE DIVIDEND.—The San Jorge Nitrate Company, Limited, has declared an interim dividend of 7½ per cent. (7s. 6d. per share), tax free, on account of the profits for the half-year ended June 30, 1893, which is payable on October 14.

MESSRS. SCHOELLER AND BROWN.—We learn that Messrs. Schoellers and Brown have been appointed the Manchester agents of Messrs. L. Cassella and Co. The firm will carry on their agency business at 32, Queen-street, Albert-square, Manchester.

THE LAST OF THE OLD BARTON AQUEDUCT.—On Monday took place the demolition of the last of the three arches forming the stone aqueduct at Barton, by which the Bridgewater Canal was formerly carried over the Irwell. A good view of the Ship Canal east of Barton Bridge and looking towards Manchester can now be obtained.

MESSRS. J. AND P. COATS, LTD.—On Tuesday the annual accounts were laid before the directors of Messrs. J. and P. Coats, Ltd., at Paisley. Subject to the final audit, it was agreed to set aside £48,000. for depreciation and to place £150,000. to the reserve fund, bringing that fund up to £450,000. It was further decided to recommend a dividend of 8 per cent. on the ordinary shares, carrying forward £48,000.

BRITISH AWARDS AT CHICAGO.—Among the awards gained by British exhibitors in the Agricultural Section of the World's Fair, we notice the name of the Anglo-Continental Guano Works Co., of London, as having been granted an award for their Peruvian guano and fertilizers. In the same section Price's Patent Candle Company, Ltd., have gained five awards for candles, stearine, paraffin, glycerine, and toilet soap.

A NEW LIBRARY FOR OWENS COLLEGE.—At a meeting of the Council of Owens College recently, a letter was read from Mr. Chancellor Christie offering to build at his personal expense a library suitable for the requirements of the College. The Council gratefully accepted Mr. Christie's munificent offer, which will enable it to supply a long-felt want. The College Library (including the Freeman Collection) now numbers upwards of 60,000 volumes.

FIRE AT A FINISHING WORKS.—A fire was recently discovered to have broken out at Messrs. Williams, Wagstaffe, and Co's dye and finishing works, Thomas-street, West Gorton, Manchester. The work-people threw buckets of water on the flames, and in a short space of time, Mr. Superintendent Savage, with a strong detachment of the fire brigade, arrived. The firemen soon got their appliances to work, and in about an hour the fire was extinguished. A quantity of calico in process of finishing was seriously damaged. The outbreak is supposed to have been caused by friction.

A SINGULAR EXPLOSION.—On Monday last a lorry belonging to the London and North-Western Railway Company, and loaded with goods, including three barrels which had contained methylated spirit, was being driven down Irvine-street, Edge Hill, by a man and a boy, who were sitting in front of the vehicle. The boy lighted a cigarette, and then threw the match behind him. It fell into one of the barrels and a loud explosion followed, the boy being hurled from his seat to the street. As he was bruised and cut, he was taken to the Royal Infirmary, where his injuries were dressed. He was afterwards able to proceed home.

THE POSITION OF INDIAN INDIGO.—The position of indigo is just now attracting considerable attention. Stocks, though larger than they were for the same month of 1891, are much below the stocks held in 1888. The future supply is, however, the chief feature of interest, as according to trustworthy advices, the Bengal crop will be deficient; though the prospects of the Kurpah crop are satisfactory, and large

shipments are confidently expected from Madras. The influence of the N.-W. Provinces is doubtful, as it is small and undependable, and depends largely upon the rains which may or may not fall season.

Market Reports.

TAR AND AMMONIA PRODUCTS.

Benzol is still quiet and prices are ranging from 1s. 5d to 1s. London, and less at other ports. The long continuance of the prices of benzol is causing much anxiety to the German producers, it was hoped if medium prices would only continue, to have a majority of the German coke ovens as benzol producers. At present time there are over 800 ovens, mostly of the Otto type producing benzol, with the result shown in the prices of to-day. It were ever to go up abnormally, Germany would soon be able to supply the whole world with benzol. No wonder we have low prices on this side of the water. Carbolic has been in good demand throughout the summer, but prices have not risen, as the supply has been equal. Solvent naphtha runs about 1s. per gallon, a trifle more or less according to quality, and in this instance also, the coal tar product has seriously interfered with by the coke oven product. Anthracite remains without change, and pitch about 25s. f.o.b. Garston.

The sulphate of ammonia market is in a dead calm, and business practically impossible, no matter at what price the article is offered. The dealers seem to have covered their requirements for the month, and are now seemingly indifferent about making further sales, knowing that if they do so they will probably frighten producers to sell at much lower prices. The market will now be made by the sellers. Sales at Liverpool have been reported at £13. 10s. spot, and for next week's delivery £13. 10s. There is no sense in the market, but unfortunately sulphate makers are easily cajoled. Sulphate is now more freely offered, and those most eager to sell are those who refused almost the highest price the market has touched. On November delivery is quoted down to £13. 10s., and October delivery £13. 2s. 6d., but these are not reliable prices, nor are they endorsed by the substantial members of the trade.

MISCELLANEOUS CHEMICAL MARKET

We have to report a quiet market for general chemicals, due not to a great extent, to so many consumers being either stopped or short time for want of fuel. Bleaching powder continues to be freely at last week's prices, viz:—£8. 10s softwoods, rails; £9. 10s. woods, 1 o.b. Caustic soda scarce and in brisk demand, prices a firm and an advance is very probable. We quote, 70% white, £10. 6s.; cream, £10. 10s., all f.o.b. Saltcake is offered at unusually low figures, but cannot find buyers. Soda ash is in but poor demand and prices are weak. Soda crystals steady at £3. 2s. 6d. Chlorate of potash finds a quiet market at 8½d. per lb.; soda of same price. Nitrate of soda is slow of sale, and price nominally 9s. 3d. to 9s. 4½d. Sulphate of copper is well enquired for, and is well maintained; £16. f.o.b. is general quotation. Acetate of foreign still difficult to move, £25. 10s. c.i.f. may be taken nominal value to-day. Nitrate is offered freely at £19. f.o.b. A lot of lime are stronger, and prices have advanced 10s. per ton. In consequence of the reduction of output in America a further advance may be expected; brown is worth £6. 10s.; grey, £11. White powdered lime sells readily at £13. 7s. 6d. to £13. 10s., Garston.

REPORT ON MANURE MATERIAL.

During the week a moderate amount of business has been done. Prices of phosphatic material tend upwards, but nitrogenous materials somewhat easier.

For 75/80% Florida phosphate rock 8½d. per unit, in cargoes to United Kingdom, is now the lowest, and there are buyers at this price for good Continental ports. For anything like early shipment 7½d. per unit now required for both Peace River and South Carolina River rock, for shipment further ahead prices are mainly nominal.

The tone of the market for River Plate bones is a shade easier than would not now be buyers of large cargoes, for shipment £4. 15s. Anything of handy size, however, afloat, would still fetch £4. 15s. A cargo of steamed River Plate bones has been it is understood, at about £4. 2s. 6d. Pending execution of contracts already made, shippers of crushed Kurrahee bones decline to

further sales. Re-sales have been made at £4. 12s. 6d. for shipment, and that is closing value. Considerable sales of Kurrachee bone meal, for shipment, have been made at £4. 12s. 6d., ex quay Liverpool, 5% sand basis, but there are no longer sellers at the price. There is nothing to report in Bombay bone meal, the nominal value remaining £4. 12s. 6d. Liverpool, Glasgow, or London, fair average quality.

Nitrate of soda is quiet, but fairly steady. On spot ordinary quality may be had at 9s. 1½d., good at 9s. 3d., and refined at 9s. 4½d. per cwt. Due cargoes, ordinary quality, are worth barely 9s., September-November shipments are quoted 9s. 3d. to 9s. 4½d. per cwt., according to size and test.

There is nothing special to report in miscellaneous manure material, but, owing to the easier market for sulphate ahead, recent current prices would not now be obtainable. There is enquiry for fish guano, but not much offering.

LIVERPOOL OIL AND COLOUR MARKET.

WEDNESDAY.

OILS.—Palm oil continues very firm owing to scarcity of supply and absence of arrivals, sales of Lagos having been made at £25. 7s. 6d. to arrive, and as high as £25. 10s. is reported. Olive has been steady at last week's currencies, but the demand is rather restricted to-day. The situation in Linseed is practically unaltered; a quiet tone prevails, but prices remain 22s. 3d. to 22s. 6d. per cwt. for Liverpool makes in export casks. Cottonseed (Liverpool refined) maintains its firmness, the advanced prices, 23s. 3d. to 24s. per cwt., still being value to-day, though in all probability next month will see easier prices. Castor oil is hardening in price, and to-day good seconds Calcutta is offering at 2½d. to 2¾d. per lb. and first-pressure French at 2¾d., sales being talked about at that figure. Tallow is firm, with a fairly good business. North American, 26s. to 28s.; Australian, 27s. to 29s. per cwt. Resin, common, is very steady at 3s. 7½d. to 3s. 9d., with a fairly good business doing. Spirits of turpentine are still easier, 21s. 6d. to 21s. 9d. being present value. Petroleum is quiet: American, 4¾d. to 5¼d., according to quality; and Russian refined, 4d. per gallon.

COLOURS are steady without alteration in prices. Ochres: Oxfordshire, common, £10., medium, £12., best, £15.; Derbyshire, common, 40s.; medium, 50s., best, 60s.; Welsh, best, 70s., seconds, 50s., and common, 18s.; Irish, Devonshire, 40s. to 45s.; French, J.C., 55s. to 60s.; M.C., 65s. to 67s. 6d. Umber: Turkish quiet; Devonshire, 50s. to 55s. White lead, red lead, and oxide of zinc unchanged. Venetian red, £6. 10s. to £10. Cobalt: Prepared oxide, 9s. 9d.; black, 9s.; blue, 6s. Zaffres: No. 1, 3s. 6d.; No. 2, 2s. 6d. Oxide of iron: Common, £6.; medium, £10.; finest, £20. Zinc oxide, £23. to £25.

THE METAL MARKETS.

LONDON, WEDNESDAY.—Pig iron dull. Scotch warrants closed at 42s. 3½d. cash, Middlesbrough 35s. cash, and hematite 44s. 6d. Copper quiet: Chili bars, G.O.B.'s and G.M.B.'s closed at £42. to £42. 7s. 6d. cash, and £42. 6s. 3d. to £42. 13s. 9d. three months. Tin easier: Straits closed at £79. 5s. to £79. 15s. cash, and £79. 12s. 6d. to £80. 2s. 6d. three months; Australian, £81. 5s. Lead quiet: Spanish, £9. 15s. od. to £9. 16s. 3d.; English, £9. 17s. 6d. to £10. Silesian spelter: Ordinary, £17. 2s. 6d. Nickel, 1s. 8d. Antimony, £38. 10s. Quick silver: First hands, £6. 10s.; second hands, £6. 9s. Copper shares steady: Cape, 1½ to 1½. Copiapo, 1½ to 1½. Libiola, 2½ to 3. Mason and Barry, 1½ to 1½. Rio Tinto, 13½ to 13½. Tharsis, 4½ to 4½.

WOLVERHAMPTON, WEDNESDAY.—Some urgent pig iron orders have been received during the week for completion before the close of the quarter. All-mine hot blast pigs are 60s. to 62s., part-mine 45s., and common 37s. 6d. Two blast furnaces have been blown in at Earl Dudley's Level Works, Brierley Hill. Quotations for Lincolnshire pigs are 46s. 6d. to 47s., and Derbyshires are 45s. to 47s. 6d. A fair business is doing in best sheets at £10. for singles. Steel plates, £7.

THE COPPER MARKET.

Messrs. Harrington and Company, in their fortnightly report, dated Liverpool, September 19th, 1893, state:—The Chili Charters for the second half of August, which were estimated at 1,000 tons, were subsequently advised as 500 tons, the quantity for the past fortnight not being yet advised are estimated at 1,000 tons, making the total since 31st December last 14,650 tons. Same time last year the quantity was 16,150 tons. Exchange 15½d.

During the past fortnight the sales of G.m.b.'s and G.o.b.'s amounted to quite 9,000 tons, and owing to encouraging statistics and a more settled feeling in America, values advanced till £42. 15s. cash and £43. 3s. 9d. three months was paid on the 6th inst., on the 7th the market received a check, and receded to £42. 6s. 3d. and £42. 13s. 9d. respectively, but next day prices began to improve, and by the 14th had reached £43. 2s. 6d. cash and £43. 10s. three months, since when they have again declined, and we close quiet to-day at £42. 10s. to £42. 15s. respectively.

The Calumet and Hecla Mining Company have declared a dividend at the rate of 20 per cent. per annum.

The total stocks in Liverpool, Swansea, London, and Havre are 44,553 tons, against 44,011 tons on the 31st ult., showing an increase of 542 tons for the fortnight. The stocks include about 2,200 tons of copper sold, but not yet delivered to smelters. The visible supply for the fortnight is 48,326 tons, against 47,881 tons on the 31st ult., showing an increase of 445 tons. The stock of English G.m.b.'s in Liverpool has been decreased from 8 to 7 tons. Refined and manufactured sorts are quiet, quotations being:—Tough cake, £46. 10s. to £47.; best select, £47. 5s. to £47. 15s.; Indian sheets, £52. 10s.; strong sheets, £53. 10s. to £54.; and yellow metal sheets, 4¾d. per lb.

The sales of Furnace material comprise—at Liverpool: 750 tons Spanish ore, to arrive at 7s. 6d.; 560 tons Chili regulus, at 8s. 6d. to 8s. 9d.; and 60 tons Cueva de la Mora precipitate, at 8s. 7½d. per unit; 750 tons argentiferous Anaconda matte, and 200 tons (re-sale), 1,500 tons argentiferous Montana matte (both for forward shipment), and 40 tons argentiferous Chili regulus, on private terms. At Swansea: 200 tons Libiola ore (out of old syndicate stock), at 8s. per unit.

TYNE CHEMICAL REPORT.

TUESDAY.

Chemicals continue quiet. Soda crystals steady at £2. 15s. Bleaching powder, £8. 15s. per ton. Caustic Soda, £12. to £12. 10s. for highest strength. Sulphur unaltered, at £4. 2s. 6d. to £4. 5s. per ton.

Bleaching powder, softs, £8. 15s. per ton, nett; hards, £9. per ton; caustic soda, 76/77%, £12. 5s. per ton, 70%, £10. 10s. to £10. 15s. per ton; recovered sulphur, 2 cwt. bags, £4. 5s. per ton; soda ash, 48%, £4. per ton, 52%, £4. 7s. 6d. per ton, 56%, £4. 15s. per ton; alkali, 36%, £3. 15s. per ton; white alkali, 48%, £4. 15s. per ton, 50%, £5. per ton, 52%, £5. 5s. per ton; hyposulphite of soda, in 5-7 cwt. casks, £7. per ton, ditto, in 1 cwt. kegs, £7. 15s. per ton; silicate of soda, 75° Tw., £2. 15s. per ton, 100° Tw., £3. 10s. per ton, 140° Tw., £3. 17s. 6d. per ton; soda crystals, in casks, £2. 15s. per ton gross weight, in 2 cwt. bags, £2. 15s. per ton nett weight; chlorate of potash, 8½d. per lb. less 6%; pearl hardening, £3. per ton nett; pure white sulphate of alumina, £4. 2s. 6d. per ton; blanc fixe, £7. 10s. per ton; chloride of barium, £7. 10s. per ton; carbonate of alumina, £28. 15s. per ton nett; aluminate of soda, £33. 15s. per ton nett; in 5 ton lots, £28. 10s.; hydrate of barium, £10. per ton nett.

South Durham salt rather scarce at 9s. 6d. per ton f.o.r.

Coals: There is still a strong demand, particularly from the mid-lands, for various qualities. Best Northumbrian steam is quoted from 12s. to 13s. per ton. Small steam in strong demand at 5s. 6d. per ton. Gas and household coal quiet. Bunker coals in fair demand. Coke steady at 15s. 6d. to 16s. per ton.

HULL PAINT, OIL, AND COLOUR REPORT.

TUESDAY.

OILS.—The situation here becomes very acute, and especially felt by manufacturers owing to the scarcity and famine prices of fuel, though very few can afford to stop altogether even at these extreme rates, owing to supplies continuing to come forward on previously arranged contracts. The exports certainly leave much to be desired both in linseed and cotton oil, especially so with the last named, which shows a considerable decrease compared with the same week a year ago, the figures being of the former 1,393 cwt., against 1,146 cwt., and of the latter, 2,777 cwt., against 6,435 cwt. The import of tallow also shows a decrease. Linseed oil has been a good market throughout the week, and closes firm at 20s. 7½d. per cwt. naked spot; month, 20s. 4½d.; October-December, 10s. per ton dearer, with buyers at 19s. 3d. naked; January-April, 19s. to 19s. 3d. Boiled do. and refined oil as on spot in casks, 22s. 6d. to 23s. 6d. Refined cotton oil has been very excited in near positions, owing, no doubt, to the scarcity of seed in near positions, and closes steady at 21s. 6d.

naked spot, an advance of over £1. per ton on the week; month, 21s. 3d., sellers; October, 20s. 6d. to 20s. 3d.; November-April have not moved much, business has been done at 18s. at which there are further buyers. Crude oil on the spot is quoted at 19s. 7½d. naked. New oil for November-April, 16s. 7½d. Refined rape oil continues dull at 24s. 6d. in casks. Olive oil without alteration. Coast cod oil, a little more doing, £17. to £19. 10s. per ton. Turpentine, 22s. Sod oil, £15 to £17. Pine oil, £7. per ton. Anti-friction grease, from £6. Brown wool grease, £8. Engine oil, 1s. 3d. to 1s. 9d. per gallon. Cylinder oil, 1s. to 2s. per gallon. Resin quiet.

CAKES.—Linseed cakes firm; and it is becoming evident that the expected unusually large demand for linseed during the coming winter for the continent, resulting from the drought, will be so heavy a drain upon the world's supplies as to materially strengthen prices here, especially as at the present spot stocks are practically exhausted; 95% pure, £8. 12s. 6d. to £8. 15s. spot; £9. to £9. 5s. October-March; ordinary, £7. 5s. to £7. 7s. 6d.; Russians, £8. 12s. 6d.; Americans, £7. 12s. 6d. Cotton cakes, strong spot, £6. to £6. 2s. 6d.; November-April, £5. to £5. 2s. 6d., at which prices buyers hold off. Rape cakes, East India, £4. 15s. Feeding cakes, £5. 12s. 6d.

PAINTS.—The exports of painters' colours and chemicals each showed a decrease, the prices ruling about the same, and being: Oxide of zinc, £24. per ton. Oxide of iron dry, £9. to £18. per ton. White and red lead, unchanged. Venetian red, dry, £6. to £10. per ton. French ochre, 60s. per ton. Ready-mixed paints, in 1, 2, 4, 7, and 14lb. lever tins, from 28s. per cwt. Enamels, from 4s. 9d. per dozen. Oak varnish, from 6s. per gallon.

WEST OF SCOTLAND CHEMICALS.

GLASGOW, TUESDAY.

Dye chemicals are all in very poor demand here just now owing to a rather severe and, until quite recently, unlooked for depression. Dyers and calico printers trace this unwelcome state of things to the coal crisis hindering the usual supply of yarns (shipping and home) coming forward. On this account most of the works are from hand to mouth, and only on part time. Jute dyeing on the north-east coast is also badly held down on account of the continued high values of the raw material.

Paraffins and mineral oils are all still very active, with the exception of lubricating oils, which, owing to the stoppage of factories, are in poor request and falling in price. Paraffin spirit (naphtha) is rising, being a farthing a gallon dearer for prompt, and from ¼d. to ½d. higher still for forward engagements.

Sulphate of ammonia has been constantly dropping, though not at a precipitate rate exactly, and spot price to-day cannot be stated at higher than £14. 2s. 6d. to £14. 5s.

General chemicals are in some of the sorts scarce, owing to interrupted production, and values are somewhat unsettled, quite precise figures being meanwhile unobtainable.

Chief prices current are:—Soda crystals £2. 15s. nett, Tyne; soda ash £3. 17s. 6d. nett, Tyne; refined alkali 48/52° £4. 15s. to £5. 5s. nett, Tyne; alum in lump £5. nett, Glasgow; caustic soda, white, 74°, £12. 5s., 70/72° £11. 5s., 60/62° £10. 5s., and cream 60/62° £10. all nett, Liverpool; bleaching powder £8. 5s. to £8. 15s. nett Tyne; salt-cake 24s.; borax, English refined, £30., and boracic acid, £37. 10s. nett, Glasgow; bicarbonate of soda, 5-cwt. casks, £6. 15s., and 1 cwt. casks £7. less 2½%, Liverpool; bichromate of potash, 4½d. nett, for Scotch and English deliveries (for export, 4¼d. nett f.o.b. Glasgow); bichromate of soda, 3¼d. nett, for Scotch and English deliveries (for export, 3½d. nett, f.o.b. Glasgow); chlorate of potash 9d. less 5%, Liverpool; nitrate of soda, 9s. 4½d.; sulphate of ammonia, £14. 2s. 6d. to £14. 5s. prompt, f.o.b. Leith; salammuniac, first and second white, £37. and £35. less 2½% any port; sulphate of copper, £15. less 5% Liverpool; paraffin scale, hard and soft, 1½d. per lb; paraffin wax 120° semi-refined 2¾d.; paraffin spirit (naphtha) 4½d. a gallon; paraffin oil, burning, standard No. 1 grade, 5d. per gallon at works, for Scotch buyers (English sales ¼d. to ¾d. lower); ditto (lubricating) 865° £4. 7s. 6d., 885° £4. to £5. 10s., and 890/895° £4. 12s. 6d. to £6. Week's imports of raw sugar at Greenock were 35,136 bags.

New Companies.

The Colonial Paper Company, Ltd.—CAPITAL £10,000., in shares of £1. each. This company has been formed to carry on the business of paper manufacturers and dealers, and makers of machinery connected with the manufacture of paper, etc. The subscribers to the memorandum of association are:—H. P. Ansell, 65, Kellett-road, London, S.W., paper merchant; H. G. Bailey, 26, Kelvin-road, High-

bury Park, London, N., accountant; G. R. Panlott, 56, Crewdson-road, London, S.W., printer; C. Stratton, 105, Shildley-road, London, S.E., bookkeeper; P. O. Hare Wyllie, The Limes, Montague-road, London, N., stationer; E. Trevallion, 7, Dunlace-road, Clapton, accountant; H. Curtis Jones, Irwell Cottage, Auckland-hill, London, S.E., clerk.

Shillingford Works Company, Ltd.—CAPITAL £10,000., in shares of £1. each. This company has been formed to take over the business formerly carried on by Hitchcock and Field, at Shillingford, and to trade as electricians, mechanical engineers, etc. The subscribers to the memorandum of association are:—J. P. Hitchcock, Shillingford, Oxen, engineer; H. Field, Hillcott, Buckhurst-hill, engineer; A. J. Estcourt, Shillingford, Oxon, engineer; A. Estcourt, Gloucester, builder; T. Forty, Shillingford, corn merchant; J. Montz, High-street, Wallingford, grocer; W. J. Reynolds, Shillingford-bridge, hotel proprietor.

Gazette Notices.

PARTNERSHIPS DISSOLVED.

N. CASH and A. W. BULOW, white lac manufacturers, Hackney Wick, N.E., under the style of N. Cash and Co.

M. A. MORRIS, J. MORRIS, B. ALTY, and A. ISHERWOOD, executors of J. Morris, deceased, and M. ISHERWOOD and A. ISHERWOOD, executors of J. Isherwood, deceased, under the style of Thomas Rostrom and Co., Ramsbottom, manufacturing chemists.

F. THODAY and H. S. THODAY, brick, tile and cement manufacturers, Cambridge, under the style of Francis Thoday and Son, and The Romsey Town Cement Co.

BANKRUPTCY ACTS, 1883 and 1890.

Receiving Orders.

IBBOTSON, JANE (trading as F. Ibbotson), Wakefield, chemist.

WAGHORN, GEORGE, Holloway-road, Holloway, N., and MACVEY, ALBERT, Parolles-road, Holloway, N., late Holloway-road, N., trading as Waghorn and Macey, Holloway-road, Holloway, N., oil and colour merchants.

The Patent List.

This list is compiled from Official sources in the Manchester Technical Laboratory, under the immediate supervision of George E. Davis and Alfred R. Davis, who report professionally upon the value of Chemical Patents.

APPLICATIONS FOR ENGLISH LETTERS PATENT.

Filter-Press Trays. J. Critchlow. 17,024. September 11.
Consuming Smoke and Noxious Gases from Furnaces, etc. G. Sheffield, W. J. Clapp, and W. Sandbrook. 17,026. September 11.
Smoke Consuming Furnaces. D. France. 17,033. September 11.
Obtaining Salt from Brine by Refrigeration. C. D. Abel. 17,054. September 11.
Improvements in Non-poisonous Matches. V. Simonet. 17,071. September 11.
Manufacture of Aluminium Compounds. W. E. Case. 17,111. Sept. 12.
Electrolytic Cells. T. Craney. 17,127. September 12.
Sulpho-Acids of the Naphthalene Series. H. E. Newton. 17,141. Sept. 12.
Artificial Stone. L. Grote. 17,142. September 12.
Manufacture of Paints. W. V. Wilson and W. B. Priest. 17,159. Sept. 12.
An Improved Blowing or Exhausting Fan. R. J. Hodges. 17,164. September 13.
Manufacture of Cyanides. G. T. Beilby. 17,173. September 13.
Smoke Consuming Locomotive Furnaces. E. F. Paddon. 17,198. September 13.
Safety Lamps. J. F. Luke and F. Green. 17,219. September 13.
Recovering Zinc from Battery Fluids. C. A. J. H. Schroeder and H. E. R. Schroeder. 17,220. September 13.
Improved Galvanic Batteries. C. A. J. H. Schroeder and H. E. R. Schroeder. 17,221. September 13.
Manufacture of Mineral Manure. G. F. Redfern. 17,235. September 13.
Taps for Corrosive Liquids. E. Partington and S. Bamforth. 17,262. September 14.
Candle Moulding Machines. H. G. Whibley and A. R. Cowles. 17,298. September 14.
Recovering Grease from Wool and Hair Washings, etc. A. J. Inston. 17,309. September 14.
Explosives. A. V. Newton. 17,321. September 14.
Artificial Stone. A. McLean and C. W. Wilson. 17,322. September 14.
Production of White Lead. A. M. C. Mary. 17,331. September 14.
Apparatus for Purifying Water and Sewage. F. P. Candy. 17,335. September 15.
Preparing River Mud for Agricultural Manure. S. Wyatt. 17,338. September 15.
Evaporating Liquids. C. E. Miles. 17,380. September 15.
Explosives. A. V. Newton. 17,336. September 15.
Steam Traps. C. Fraser. 17,412. September 16.
Water Proofing Paper. F. Crossland and J. W. Massey. 17,414. Sept. 16.
Treatment of Zinc Produced by Electrolysis. W. Wright and J. B. Hamond. 17,466. September 16.
New Colouring Matters. B. Wilcox. 17,472. September 16.
Treating Waste Rubber. J. Anderson, junr. 17,477. September 16.
Improved Fire Extinguisher. O. A. Stempel. 17,488. September 16.
Thermo-Electric Batteries. J. B. C. Dion. 17,493. September 16.

IMPORTS OF CHEMICAL PRODUCTS

AT

THE PRINCIPAL PORTS OF THE UNITED KINGDOM.

LONDON.

Week ending September 16th.

Acetic Acid—	
Holland,	23 pkgs. Beresford & Co.
"	1 A. & M. Zimmermann
Germany,	1 Pickford & Co
Alkali—	
France,	200 c. Arnati & Harrison
Alum—	
Holland,	120 pkgs Ohlenschlager Bros.
Belgium,	25 R. W. Greef & Co.
Asbestos—	
Austria,	£100 Bailey & Leatham
Belgium,	5 T. Palmer
Barytes—	
Belgium,	13 cks. J. L. Lyon & Co.
"	55 W. Harrison & Co.
Holland,	20 Magee, Taylor, & Co.
Germany,	22 W. Harrison & Co.
Belgium,	20 G. Steinhoff & Sons
"	200 Leach & Co.
Bromine—	
Germany,	10 pkgs. A. & M. Zimmermann
Caoutchouc—	
Germany,	62 c. Prop. Bull Wf.
E. Indies,	13 Lewis & Peat
"	50 L. & I. D. Jt. Co.
France,	48 H. Johnson & Son's
Carbonic Acid Gas—	
Holland,	25 pkgs. Volcanic Aeration Co.
Castor Oil—	
Belgium,	30 brls. Burrell & Co.
E. Indies,	10 cs. Co-op. Lightge Association Ltd.
Caustic Potash—	
France,	100 c. Petri Bros.
"	37 pkgs. Carey & Sons
"	20 drs. Spies Bros. & Co.
Chemicals (otherwise undescribed)	
Germany,	7 pkgs. T. H. Lee
"	66 A. & M. Zimmermann
"	£7 C. Atkins & Nisbet
Belgium,	10 Craven & Co.
"	6 T. Palmer
Chloride of Sulphur—	
Germany,	20 pkgs. Typke & King
Cream of Tartar—	
Spain,	7 pkgs. C. Christopherson & Co.
"	4 B. & F. Wf. Co., Ltd.
France,	3 Evans, Lescher, & Co.
Belgium,	25 B. & F. Wf. Co., Ltd.
"	10 Sharland & Co.
Holland,	10 M. Ashby, Ltd.
Italy,	23 Middleton & Co.
"	20 Howard & Sons
Dextrine—	
Germany,	50 pkgs. H. Lorenz
Dyestuffs (otherwise undescribed)	
France,	2 pkgs. Stockwell & Co.
Dyestuffs—	
Aniline	
Holland,	1 pkge. Kraye, Back, & Co.
Cochineal	
Canaries,	7 pkgs. Johnson, Hicks, & Co.
"	55 F. Huth & Co.
Cutch	
Rangoon,	997 pkgs. Prop. Hay's Wf.
"	500 Leach & Co.

Divi Divi	
Germany,	45 pkgs. Kleinwort, Sons, & Co.
Extracts	
France,	4 pkgs. T. H. Lee
"	52 133 drs. Carey & Sons
"	60 L. J. Levinstein & Sons
Denmark,	8 Bailey & Leatham
Gambler	
E. Indies,	885 pkgs. Adamson, Gilfillan, & Co.
"	219 L. & I. D. Jt. Co.
Indigo	
Hong Kong,	3 cs. Escombe Bros & Co.
E. Indies,	30 chts. Croysdale & Co.
"	18 Parry & Co.
"	3 P. Macfadyen & Co.
Logwood	
Mexico,	30 t. R. B. Watson & Co.
Myrabolams	
E. Indies,	700 pkgs. W. Shelcott
Tanner's Bark	
P. E. Africa,	2 t. J. Owen
Belgium,	20 Sawyer, Sons, & Co.
"	10 Bevington & Sons
Adelaide,	315 Baxter & Hoare
Sydney,	46 Union Mite. Co. of Australia
Turmeric	
Cochin,	202 pkgs. Anderson, Weber, & Smith
Valonia—	
A. Turkey,	20 t. A. & W. Nesbitt
"	10 H. Lorenz
Farina—	
Germany,	6 pkgs. T. H. Lee
Holland,	50 J. Knill & Co.
Flux Skimmings—	
U. States,	60 pkgs. Hughes, Chemery & Co.
Glucose—	
U. States,	250 pkgs. 250 c. Prop. Chmblin's Wf.
"	100 600 c. Fuerst Bra.
"	300 1,650 T. M. Duche & Son
"	200 1,129 Prop. Scott's Wf.
France,	200 200 Barrett, Tagant, & Co.
Germany,	15 115 J. Knill & Co.
U. States,	625 1,254 L. & I. D. Jt. Co.
"	400 2,180 L. Sutro & Co.
Hypsulphite—	
Belgium,	53 pkgs. Beresford & Co.
Magnesium—	
Germany,	4 pkgs. D. W. Greenhough & Sons
Manure—	
Germany,	81 t. Humphrey & Co.
Belgium,	1 Leach & Co.
Methyl Alcohol—	
Germany,	17 dms. Stein Bros. Elkan & Co.
"	4
Mica—	
E. Indies,	£1,025 W. M. Smith & Sons
Ochre—	
France,	30 cks. B. & F. Wf. Co., Ltd.
China,	11 brls. Beck & Pollitzer
Painters' Colours—	
Germany,	4 cks. H. Lambert
"	2 cs. T. H. Lee
Holland,	21 pkgs. Spies Bros. & Co.
France,	2 Magee, Taylor, & Co.
"	9 Flageolet & Co.
"	7 Hernu, Peron, & Co.
Belgium,	5 cks. D. C. Thomas & Sons
"	1 pkge. T. Palmer
U. States,	132 brls. Steinhoff, Sons, & Co.

Paraffin Wax—	
U. States,	101 cs. H. Hill & Sons
"	1,969 pkgs. J. H. Usmar & Co.
"	245 brls. Williams, Torrey, & Co., Ltd.
Pearl Ash—	
France,	45 c. F. W. Berk & Co., Ltd
Phosphate Rock—	
Belgium,	3 t. Coml. Lightge. Co.
Canada,	1,490 Anglo Contl. G. Wks.
Belgium,	10 T. Farmer & Co.
Holland,	6 Coml. Lightge. Co.
France,	178 J. Burnett & Sons
Pitch—	
France,	175 cks. H. Hill & Sons
N. Russia,	500 Linck, Moeller, & Co.
"	110 Hoare, Marr, & Co.
Belgium,	7 Poth, Hille, & Co.
"	2 T. H. Lee
Plumbago—	
Germany,	18 cks. Lentz & Hessel
"	37 B. Galloway
"	4 cs. W. A. Sparrow
Cochin,	1,900 bgs. Parry & Co.
Ceylon,	68 brls. Doulton & Co.
"	33 R. G. Hall & Co.
Potash—	
Germany,	14 pkgs. Mead, Son, & Co.
France,	180 c. Petri Bros
"	100 F. W. Berk & Co., Ltd.
Potassium Carbonate—	
France,	75 c. J. A. Reid
Potassium Chlorate—	
Belgium,	1 pkge. Sawyer, Sons, & Co.
Potassium Cyanide—	
Holland,	5 pkgs. F. Boehm
Potassium Permanganate—	
Belgium,	5 pkgs. T. Palmer
Potassium Sulphate—	
Belgium,	9 pkgs. Mead, Son, & Co.
Pumice Stone—	
Italy,	26 c. R. Goringi
Rosin—	
Holland,	8 brls. R. Baelz & Co.
U. States,	206 F. & S. Chiesman & Co.
"	2,200 G. Nutter & Co.
Saltpetre—	
Germany,	73 cks. 214 kgs. P. Hecker & Co.
"	3 Brown & Elmslie
E. Indies,	1,078 bgs. Ralli Bros
Sodium Carbonate—	
France,	2 c. H. Johnson & Sons
Sodium Sulphate—	
Holland,	30 pkgs. Beresford & Co.
Stearine—	
France,	80 bgs. Walbaum & Tossetti
Belgium,	63 H. Hill & Sons
"	63 Union L. Co., Ltd.
France,	172 G. Boor & Co.
Tallow—	
N. Zealand,	64 cks. J. Owen
"	58 Dalgety & Co.
"	68 S. J. Clark
"	212 Beresford & Co.
"	36 Elkan & Co.
Sydney,	69 Philipps & Graves
"	37 L. & I. Dk. Co.
Tar—	
N. Russia,	2,240 brls. Linck, Moeller, & Co.
"	100 Page, Son, & East
"	400 Produce Brokers Co.

Tartaric Acid—	
Holland,	20 pkgs. Middleton & Co.
"	23 B. & F. Wf. Co., Ltd.
Turpentine—	
U. States,	1,160 brls. Prod. Brokers Co., Ltd.
Ultramarine—	
Belgium,	50 pkgs. Co-op. Lighterage Association
Holland,	11 5 cs. Hernu, Peron, & Co.
"	4 cks. Haefner, Hilpert, & Co.
Belgium,	5 brls. Leach & Co.
Yarnish—	
U. States,	25 pkgs. Taylor Bros.
White Lead—	
Belgium,	21 cks. Burrell & Co.
Holland,	40
Germany,	20 F. Pryor
"	22 M. Ashby, Ltd.
"	1 H. Lambert
"	10 W. Taylor, junr., & Co.
Holland,	22 M. Ashby, Ltd.
"	27 Colthurst & Harding
Zinc Oxide—	
Holland,	25 brls. M. Ashby, Ltd.
U. States,	250
Germany,	25 cks. Beresford & Co.
"	38 C. Tennant, Sons, & Co.
Holland,	8 T. H. Lee

LIVERPOOL.

Week ending September 14th.

Acetate of Lime—	
New York,	2,305 bgs.
Aluminium—	
Rotterdam,	3 cks. 1 bkt.
Ammonium Sulphate—	
Marseilles,	9 brls.
Antimony—	
Antofagasta,	530 sks. A. Gibbs & Co.
Borate of Lime—	
Antofagasta,	41 sks. A. Gibbs & Co.
"	1,500 Cockbain, Allardice & Co.
Valparaiso,	1,500
Caoutchouc—	
Hamburg,	42 cks.
Castor Oil—	
Calcutta,	950 cs. Ralli Bros.
"	125
Chemicals (otherwise undescribed)	
Stettin,	1 cs. C. W. Field
Antwerp,	7 9 kgs.
Colours—	
Rotterdam,	24 cks. 7 cs.
Hamburg,	2
Antwerp,	8 brls. J. T. Fletcher & Co.
Cream of Tartar—	
Bordeaux,	1 ck.
Marseilles,	17
Rotterdam,	12
Dyestuffs—	
Cutch	
Rangoon,	6,498 bxs.
Extracts	
Bordeaux,	20 cks.
Baltimore,	600 brls. Bontcher, Bacon & Co.
Marseilles,	20 cks.
Fustic	
Corinto,	600 t. D. Midgley & Sons

Gambler Singapore, Akassa,	1,467 bls. 25 bgs.	Royal Niger Co.
Madder Marseilles, Orshella Lisbon,	2 brls. 4 bls.	P. Behrends A. Barbosa & Co.
Dyestuffs (otherwise undescribed) New York,	5 brls. 8 bxs.	W. Bingham
Farina Stettin,	1,550 bgs.	Browne, Geveke & Co.
" 238		
Flux Skimmings Baltimore,	107 sks.	
Glucose New York,	401 brls.	
Limestone Antwerp,	4 cs.	J. T. Fletcher & Co.
Manganese Coquimbo,	1,450 t.	
Nitrate Rotterdam,	20 cks.	
Ochre Marseilles,	62 brls.	
Paint Boston,	20 cs.	
Paraffin Scale Baltimore Philadelphia,	299 brls. 942	
Phosphate Rock Port Royal,	1,920 t.	
Pitch Marseilles,	25 brls.	
Potash Hamburg,	11 cks.	
Pyrites Huelva,	2,009 t.	Beauford & Co.
Rosin New York, N. Orleans, Savannah,	400 brls. 500 4,205	
Saltpetre Calcutta,	1,805 bgs.	
Soap Marseilles, Philadelphia,	505 cs. 1,100 bxs.	63 crts.
Soapstone Bordeaux,	950 bgs.	G. G. Blackwell
Stearine Antwerp,	15 bgs.	
Sulphuric Ether In transit,	5 cs.	
Talc Bordeaux,	450 bgs.	G. G. Blackwell & Co.
Tallow Boston, Montreal, Philadelphia, Zarate,	63 brls. 25 tcs. 267 823 cks.	11 hds. H. Cook & Co. J. Nelson & Son, Ltd.
Tartar Bordeaux,	37 cks.	
Tartaric Acid Rotterdam,	5 cks.	
Tincol Calcutta,	109 bgs.	
Tin Perchloride Antwerp,	2 cks.	J. T. Fletcher & Co.
Ultramarine Hamburg, Rotterdam,	14 cks. 8	3 cs.
Verdigris Bordeaux, Marseilles,	2 cks. 4	
Waste Salt Hamburg,	1,524 bgs.	
White Lead Rotterdam, Antwerp, Ghent,	56 cks. 11 6	J. T. Fletcher & Co.
Zinc Ashes Nantes,	43 cks.	R. J. Francis & Co.
Zinc Oxide Rotterdam, Antwerp,	35 cks. 15 brls.	J. T. Fletcher & Co.
" 70		

HULL.

Week ending September 16th.

Acetate New York,	569 bgs.	Wilson, Sons, & Co., Ltd.
Ammonia New York,	25 cyskrs.	Wilson, Sons, & Co., Ltd.
Barytes Antwerp,	100 bgs.	43 cks. Bailey & Leetham
" Bremen,	45 cks.	Tudor & Sons Wilson, Sons, & Co., Ltd.
Caoutchouc Hamburg,	1 cs.	C. M. Loft-house & Co.
Chemicals (otherwise undescribed) Dunkirk,	81 pks.	Wilson, Sons, & Co., Ltd.
" Bremen,	1 cs.	Veltmann & Co.
" Danzig, Hamburg, Dunkirk,	12 pks. 1 ck. 70 dms.	
Colours Ghent,	60 brls.	Wilson, Sons, & Co., Ltd.
" Flushing,	25 cks. 47 pks.	G. Lawson & Sons
" 3		Brasch & Rothenstein
Hamburg,	2 cs.	Wilson, Sons, & Co., Ltd.
Rotterdam,	33 pks.	W. & C. L. Ringrose
" 6		G. Lawson & Sons
Bremen,	13	Veltmann & Co.
" 6 cks.		J. Pyefinch & Co.
Flushing,	12	1 cs. Hutchin- son & Son
" 3		Brasch & Rothenstein
Rotterdam,	19	3 Hutchinson & Son
Dunkirk,	4	Wilson, Sons, & Co., Ltd.
Dextrine Stettin,	60 bgs.	Wilson, Sons, & Co., Ltd.
Dyestuffs Flushing,	129 pks.	G. Lawson & Sons
" Rotterdam,	4	W. & C. L. Ringrose
" 37 brls. 1 bx.		Hutchin- son & Son
Extracts New York,	100 brls.	Wilson, Sons, & Co., Ltd.
Madder Rotterdam,	1 ck.	Hutchinson & Son
Myrabolams Bombay, Sumac Limassol,	1 625 bgs. 705 bgs.	
Farina Ghent,	149 cs.	25 pks. Wilson, Sons, & Co., Ltd.
" Stettin,	300 bgs.	"
" Harlingen, Dunkirk,	600 100 40	"
Glucose New York, Stettin,	250 brls. 150 bgs.	
Kaolin Rotterdam,	20 cks.	Reckitt & Sons
Paint Hamburg,	50 dms.	
Plumbago Hamburg,	17 cks.	G. Buckton & Sons
" 17		Wilson, Sons, & Co., Ltd.
Pyridine Stettin,	13 cks.	Wilson, Sons, & Co., Ltd.
Rosin Bordeaux, Rotterdam,	4 cks. 2	G. Lawson & Sons

Saltpetre—

Hamburg,	7 kgs.	C. M. Loft- house & Co.
Size Hamburg,	8 10 cks.	C. M. Loft- house & Co.
Tallow New York,	150 tcs.	Wilson, Sons, & Co., Ltd.
Harlingen,	11 cks	
Tar Stockholm,	10 brls.	49 cks. Wilson, Sons, & Co., Ltd.
Tartar Bordeaux, Hamburg,	2 cks. 5	Wilson, Sons, & Co., Ltd.
Tartaric Acid Rotterdam,	2 cks.	G. Lawson & Sons
Ultramarine Rotterdam,	4 cks.	Todd & Son Hutchinson & Son
" 13		
Varnish New York,	100 bxs.	Wilson, Sons, & Co., Ltd.
White Lead Antwerp,	70 cks	Bailey & Leetham
Rotterdam,	10	W. & C. L. Ringrose
" 21		Sissons Bros. & Co.
" 27		Hutchinson & Son

GLASGOW.

Week ending September 21st.

Acetate of Lime New York,	847 bgs.	
Amyl Acetate Hamburg,	2 cs.	
Barium Sulphate Antwerp,	270 bgs.	
Barytes Rotterdam,	46 cks.	
Cellulose Hamburg,	102 bls.	
Chemicals (otherwise undescribed) Hamburg,	5 cks. 1 cs.	
Colours Hamburg, Rotterdam,	3 cks. 10	J. Rankine & Son
" 17 pkgs.		
Cream of Tartar Marseilles,	21 brls.	
Dyestuffs Alizarine Rotterdam,	172 cks. 1 bx.	J. Rankine & Son
Dyewood Extract Antwerp,	53 6 cks.	
Farina Delfzyl,	50 bgs.	
Glucose New York,	400 brls.	
Hydrofluoric Acid Hamburg,	1 ck.	
Ochre Marseilles,	58 brls.	
Paint Gothenburg,	1 tin	
Pitch Antwerp,	9 cks.	
Potash Rotterdam,	20 cks.	J. Rankine & Son
" Montreal, Hamburg,	12 brls. 31 cks.	
Potassium Cyanide Antwerp,	150 cs.	
Rosin New York,	800 brls.	
Soap Marseilles,	110 cs.	
Sodium Acetate Rouen,	30 cks.	
Sodium Sulphate Hamburg,	1 bag	
Starch New York,	347 bgs.	
Tallow New York,	40 hhd.	
Tar Marseilles,	9 brls	

Waste Salt—

Hamburg,	242 cks.	610 bgs.
White Lead Rotterdam,	27 cks.	J. Rankine & Son
Zinc Oxide Antwerp,	40 cks.	

TYNE.

Week ending September 16th.

Asbestos Rotterdam,	1 bls.	Tyne S. S. Co.
Barium Carbonate Rotterdam,	129 bgs.	Tyne S. S. Co.
Barytes Antwerp,	23 cks.	Tyne S. S. Co.
Colours Hamburg, Antwerp, Rotterdam,	1 ck. 3 3 cs.	Tyne S. S. Co. "
Cottonseed Oil Rotterdam,	2 brls.	Tyne S. S. Co.
Farina Antwerp,	5 bgs.	Tyne S. S. Co.
Phosphate Brussels,	170 t.	
Salt Hamburg,	20 bgs.	Davison & Pickering
Saltpetre Hamburg,	3 cks.	
Soap Rotterdam,	2 cs.	Tyne S. S. Co.
Stearine Hamburg,	13 bgs.	Tyne S. S. Co.
Superphosphate Antwerp,	100 bgs.	Tyne S. S. Co.
Tar Archangel,	1,650 brls.	

GOOLE.

Week ending September 13th.

Alizarine Rotterdam,	99 brls.	
Alkali Calais,	24 cks.	
Antimony Boulogne,	5 cks.	
Caustic Potash Calais,	76 dms.	
Caoutchouc Boulogne,	7 cks.	
Chemicals (otherwise undescribed) Rotterdam,	2 brls.	
Dyestuffs (otherwise undescribed) Boulogne,	8 cks. 1 cs. 63 pkgs.	
Farina Hamburg,	200 bgs.	
Glucose Calais,	200 bgs.	
Indigo Rotterdam,	11 cks.	
Muriate of Potash Rotterdam,	10 cks.	
Potash Dunkirk,	34 dms.	1 brl.
Saltpetre Rotterdam,	200 bgs.	
Soda Rotterdam,	3 brls.	
Waste Salt Hamburg,	270 t.	402 cks.
Zinc Oxide Rotterdam,	5 cks.	

GRIMSBY.

Week ending September 16th.

Albumen Hamburg,	5 pkgs.	
Caoutchouc Hamburg,	1 cs.	
Chemicals (otherwise undescribed) Hamburg, Rotterdam,	11 cs. 40 cks.	9 cks.
Dyestuffs (otherwise undescribed) Dieppe,	28 cks.	
Farina Hamburg,	22 bgs.	
Size Antwerp,	7 cks.	

EXPORTS OF CHEMICAL PRODUCTS

OF

THE PRINCIPAL PORTS OF THE UNITED KINGDOM.

LONDON.

Week ending September 20th.

Acids—		
Victoria, B.C., 1 kg.	£8	
Auckland, 4 cs.	17	
Montreal, 12 pks.	25	
Alkali—		
Sydney, 15 c.	£15	
Alum—		
Batoum, 20 t.	£120	
Ammonia—		
Yokohama, 2 cs.	£5	
Ammonia Ash—		
Sydney, 10 t. 2 c.	£50	
Ammonium Carbonate—		
B. Ayres, 1 t.	£33	
Bordeaux, 5 cs.	31	
Ammonium Chloride—		
Odessa, 1 t. 15 c.	£36	
Cologne, 19 cs.	77	
Ammonium Sulphate—		
Rouen, 75 t.	£45.3	
Hamburg, 328	4.760	
Argol—		
Algoa Bay, 1 c.	£6	
Arsenic—		
Napier, 6 t.	£104	
Amsterdam, 6 cs.	18	
Gaborne, 3	50	
Wellington, 25 dms.	18	
Bichloride of Mercury—		
B. Ayres, 10 kgs.	£106	
Bismuth Subnitrate—		
B. Ayres, 3 cs.	£102	
Bisulphite of Lime—		
Auckland, 2 t. 15 c.	£19	
Borax—		
Algoa Bay, 5 cs.	£19	
Melbourne, 2 t. 10 c.	126	
Dunedin, 10 kgs.	16	
Boric Acid—		
Rosario, 3 cs.	£20	
Bromine—		
Melbourne, 1 cs.	£8	
Carbolic Acid—		
E. London, 20 dms. 10 cs.	£13	
Brussels, 10 kgs.	30	
Carbonic Acid Gas—		
Bordeaux, 15 tubes	£8	
Caustic Potash—		
Napier, 1 t. 10 c.	£56	
Hong Kong, 16 jars	5	
Caustic Soda—		
Philadelphia, 15 t.	£156	
Melbourne, 30 9 c.	283	
Algoa Bay, 14	23	
Lyttelton, 8 7	86	
Maaritus, 15	220	
Dunedin, 3 6	34	
Chemicals (otherwise undescribed)		
Seville, 4 brls. 2 cs.	£27	
Durban, 1 5	11	
E. London, 6 cs.	10	
Algoa Bay, 2	40	
Natal, 20	15	
Calcutta, 200 dms.	25	
Colombo, 5 cs. 4 pkgs.	24	
Chloride of Lime—		
Hong Kong, 16 jars	£3	
Citrate of Magnesia—		
Valencia, 14 c.	£58	
Citric Acid—		
St. Petersburg, 4 t. 5 cs.	£787	
Hamburg, 2 kgs. 1	59	
Odessa, 12 c. 5	150	
Brussels, 5	18	
Singapore, 2	18	
Antwerp, 10	80	
Barcelona, 1 t.	160	
Amsterdam, 2	17	
Calcutta, 1 cs.	3	
Townsville, ½	5	

Bundaberg, ½	5	
Libau, 10	86	
Cadiz, 2	17	
Algoa Bay, 1	10	
M. Video, 1 ck.	40	
Coal Products—		
Alizarine		
Bombay, 77 cs.	£356	
Aniline Oil		
Rotterdam, 12 dms.	£380	
Aniline Dyes		
Calcutta, 1 cs.	£20	
1 tank	80	
Anthracene		
Rotterdam, 32 t.	£992	
908 c.	1,257	
Benzol		
Sydney, 10 cs.	£7	
Treport, 12 cs.	142	
Rotterdam, 23 dms.	616	
Calais, 80 cs.	575	
Boulogne, 158	160	
Carbolic Acid		
Treport, 10 cs.	£12	
Coal Tar		
Algoa Bay, 220 dms.	£9	
Creosote		
Selzalte, 16,000 gls.	£147	
Dantzig, 50 brls.	30	
Ghent, 412	175	
Myrbane		
Calais, 22 dms.	£39	
Libau, 3 cs.	11	
Myrbane Oil		
Dunedin, 2 c.	£7	
Naphtha		
Calais, 95 c.	£91	
Treport, 58 brls.	130	
Naphthaline		
Marseilles, 35 cs.	£57	
Hamburg, 10 c.	6	
Pitch		
Constantinople, 20 brls.	£8	
Boston, 59 t.	125	
Philadelphia, 244	423	
Ghent, 663	812	
Amsterdam, 350	466	
Rotterdam, 239	293	
Boston, 300 cs.	199	
Canterbury, 17 c.	6	
Pyridine Bases		
Antwerp, 12 rills.	£80	
Tar		
Dantzig, 250 brls.	£125	
Montreal, 1 drum	1	
Tar Oil		
Paris, 77 c.	£50	
Toluol		
Hamburg, 10 pns.	£117	
Rotterdam, 20	180	
" 29 runs	100	
Copperas—		
Gibraltar, 2 t. 3 c.	£7	
Copper Sulphate—		
Constantinople, 10 c.	£3	
Treport, 6 t. 19	120	
Odessa, 4	60	
Cream of Tartar—		
Hobart, 3 c.	£13	
Melbourne, 1 t.	74	
Sydney, 2 4	181	
Brisbane, 2	10	
Disinfectants—		
Bordeaux, 6 cs.	£32	
Paris, 2 t. 2 c.	10	
Calcutta, 4 dms.	10	
Rotterdam, 10 cs.	50	
Zanzibar, 33 pkgs.	19	
Hypophosphite of Lime—		
Philadelphia, 1 t. 8 c.	£524	
Litharge—		
Algoa Bay, 10 c.	£21	
Manganese Peroxide—		
Rio de Janeiro, 1 t. 1 c.	£18	
Manure—		
Philadelphia, 2 t.	£30	
Lisbon, 112	365	
Calicut, 10 4 c.	48	
Treport, 89 13	540	

Rouen, 126	420	
Bordeaux, 64 18	390	
Jersey, 89	289	
Hamburg, 9	135	
Lyttelton, 15 6	60	
Palma, 7 10	61	
Werdlingen, 160	640	
Dunedin, 125 10	348	
Phosphoric Acid—		
Boston, 2 t. 2 c.	£130	
Boulogne, 2	10	
Phosphorus—		
Las Palmas, 1 c.	£11	
Potash Salts—		
Natal, 25 t. 4 c 90 cs.	£1,006	
Potassium Bichromate—		
Natal, 5 c.	£12	
Potassium Fluoride—		
Melbourne, 1 t.	£100	
Potassium Oxalate—		
Yokohama, 1 kg.	£2	
Saccharum—		
Auckland, 4 t. 18 c.	£78	
Salammoniac—		
Constantinople, 1 t. 7 c.	£47	
Batoum, 1 10	62	
Saltpetre—		
Gibraltar, 15 t.	£334	
Melbourne, 2 10 c	54	
Wellington, 10	13	
Brisbane, 1	22	
Ghent, 2	41	
Sheep Dip—		
Calcutta, 3 dms. 2 cs	£16	
Algoa Bay, 550	187	
Natal, 209 kgs. 500	321	
Dunedin, 300	900	
Sydney, 500	1,500	
Cape Town, 150	45	
Soda Ash—		
Natal, 12 t. 3	£2	
Lyttelton, 12 t. 3	61	
Soda Crystals—		
Freemantle, 5 t. 7 c.	£17	
Natal, 3 6	11	
Sodium Bicarbonate—		
Melbourne, 5 c.	£10	
Canterbury, 2 t. 10	17	
Sydney, 10 1	70	
Hawke's Bay, 3 15	24	
Auckland, 1	7	
Sodium Carbonate—		
Wellington, 6 t. 3 c.	£61	
Sodium Silicate—		
Lyttelton, 7 t. 11 c.	£42	
Wellington, 3 2	18	
Sulphur—		
New York, 5 c.	£9	
Cape Town, 8 t. 18 100 kgs	143	
Calcutta, 2	19	
Demerara, 20 brls.	28	
Strychnine—		
Sydney, 2 c.	£61	
Sulphuric Acid—		
E. London, 30 cs.	£30	
Colombo, 15 c.	10	
Algoa Bay, 20 4 t.	32	
Aden, 10	10	
Geraldton, 19	13	
Hong Kong, 60	60	
Sulphuric Ether—		
Colombo, 1 cs.	£10	
Superphosphate—		
Lyttelton, 50 t.	158	
Tartaric Acid—		
Singapore, 4 cs.	£100	
Melbourne, 1 t.	19	
Townsville, 3 c.	370	
Rosario, 25 brls.	29	
Odessa, 6	29	
Hawke's Bay, 3	15	

LIVERPOOL.

Week ending September 20th.

Alum—		
Montreal, 6 t. 16 c. 2 q.	£35	
Patras, 3 1	15	
Charlotte Town, 1 3	5	
Alexandria, 1 8	12	
Dedegato, 1 10	7	
Bahia, 1	8	
Calcutta, 8 16	77	
Salaora, 1 1 1	6	
Galatz, 4 6	49	
Ibrail, 2 15	16	
Syra, 3 5	19	
Beyrout, 7 10	45	
Melbourne, 3 3	20	
Aluminous Cake—		
Calcutta, 16 t. 17 c.	£65	
Ammonium Carbonate—		
Seville, 12 c. 3 q.	£19	
Valparaiso, 10	20	
Ammonium Chloride—		
Montreal, 5 c 2 q.	£10	
Bilbao, 3 t. 3 2	111	
Bombay, 4 1 3	56	
Syra, 3 2 6	6	
Patras, 11 2 20	20	
Ammonium Sulphate—		
Hamburg, 84 t. 15 c. 4 q.	£1,274	
Rotterdam, 9 17	123	
Sourabaya, 30 11 1	485	
Nantes, 14 14	225	
Antimony Oxalate—		
Ibrail, 15 c. 1 q.	£35	
Asbestos—		
Akassa, 1 cs. 1 bl.		
Bleaching Powder—		
Boston, 452 cs.		
Calcutta, 175 cs.		
New York, 122 175 cs.	25 bxs.	
Rio de Janeiro, 6 7		
Rotterdam, 6		
Baltimore, 72		
Ghent, 65		
Boric Acid—		
Boston, 3 t. 5 c.	£108	
Borax—		
Seville, 1 t. 13 c.	£44	
Havre, 9 4 1 q.	1	
Hamburg, 9 17 7	291	
Cardenas, 1 4 2	7	
Rotterdam, 1 3 30	30	
Nantes, 2 5 60	18	
Alexandria, 4 brls.	8	
St. John's, N.F., 1 5	2	
Stettin, 1 19 2	52	
Rosario, 15 3 27	27	
Calcined Magnesia—		
Genoa, 3 c.	£100	
Calcium Chloride—		
B. Ayres, 3 t. 16 c.	£9	
M. Video, 2 11	6	
Carbolic Acid—		
Hamburg, 8 c.	£23	
Singapore, 4 2 q.	10	
Rotterdam, 10 t.	567	
Gibraltar, 6 cs.	25	
Bombay, 6	7	
Shanghai, 2	8	
Constantinople, 10 2	20	
Caustic Potash—		
Bombay, 10 c.	£14	
Baltimore, 2 t. 1	45	
Caustic Soda—		
Algoa Bay, 5 bxs. 55 cs.		
Baltimore, 92 270 brls		
Boston, 89 dms.		
B. Ayres, 60		
Calcutta, 519		
Cartagena, 10		
Charlotte Town, 30		
Barcelona, 142		
Corfu, 10		

Galatz,	270	
Genoa,	97	
Iquique,	18	
Maceio,	30	
Messina,	55	
Montreal,	500	30 kgs. 10
New York,	854	25 bxs. 10
Odessa,	48	
Oporto,	111	
Puerto Cabello,	20	
Rio de Janeiro,	8	
Seville,	211	
Bombay,	28	
Demerara,		10 kgs.
Gefse,		10 cks.
Hamburg,	32	
Maranham,	5	
Melbourne,	4	
Monterey,	14	
Nantes,	35	
Singapore,	50	
Stettin,	70	
Sydney,	10	
Valencia,	10	

Chemicals (otherwise undescribed)

Beyroul,	1 t. 1 c.	£36
Salonica,	1	36
Rotterdam,	10	18
Bombay,	4	151
Kurrachee,	18	29
Philadelphia,	13	310
Volo,	5	1 q. 9

China Clay—

Ferrol,	4 t.	
Barcelona,	6	
Boston,	275	

Chloroform—

Montreal,	1 cs.	
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Coal Products—**Aniline Colours**

New York,	1 cs. 10 cks.	
Solonica,	9	
Shanghai,	10	
Yokohama,	2	

Aniline Oil

Barcelona,	10 tins.	
Genoa,	5	8 dms.

Aniline Salts

Barcelona,	12 cks.	
Genoa,	5	

Benzine

Shanghai,	2 dms.	
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Cresote Oil

Hong Kong,	80 dms.	
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Pitch

Marseilles,	2,502 t.	
Philadelphia,	10 brls.	

Tar

St. John's, N.F.,	50 hf.-brls.	
Penang,	100 brls.	

Cobalt Oxide—

Gijon,	3 q.	£33
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Colours—

Constantinople,	2 cs.	
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Copperas—

Salazora,	1 t. 1 c. 1 q.	£4
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Copper Sulphate—

Galatz,	19 c. 3 q.	£15
Genoa,	4 t. 12	67
Venice,	3	45
Hobson's Bay,	10	150
Antwerp,	11	4
Naples,	13	3
Calcutta,	2	30
Kurrachee,	1	5
Bombay,	2	10
Nantes,	5	15
Danzig,	2	1
Constantinople,	1	17
Palermo,	4	3
Odessa,	6	4

Disinfectants—

Para,	7 c. 3 q.	£15
St. John's, N.F.,	17	2
Bombay,	18 t. 17	214
Algoa Bay,	1	26

Flowers of Sulphur—

Cape Town,	1 t. 15 c. 3 q.	£17
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Lime—

Accra,	4 t.	
Lagos,	70 brls.	£5

Litharge—

Oporto,	6 cks.	
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Magnesium—

New York,	1 box	
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Magnesium Sulphate—

Bombay,	300 kgs.	
Calcutta,	20	
Seville,	2 t. 13 c. 3 q.	£12

Manganese—

B. Ayres,	1 t. 19 c.	
Rouen,	1 ck.	

Manure—

Las Palmas,	3 t.	£24
Vancouver,	1	7 c 3 q 60
Bordeaux,	260	6
Havre,	250	5
Genoa,	269	6
Barbadoes,	20	1

Paint—

Anamaboe,	2 cs.	
Benguella,	2	80 kgs.
Bombay,		25 dms.
Buenos Ayres,		48
Cabinda,	2 cks.	
Calcutta,	7	57
Cardinas,	6	
Cape Town,		35
Fernando Po,		29
Hamburg,		38
Loanda,		390
Montreal,	3	
New York,	2	
Port Said,	2	
Rio de Janeiro,		25
St. Domingo,	11	
St. John's, N.F.,	7	430
Sierra Leone,		120
Singapore,	5 cs.	
Vera Cruz,	7 cks.	
Ceplalonia,	2	
Galveston,	1	10
Gibraltar,		154
Harbor Grace,	8	59
Iquitos,	2	
Jaffa,		7
Old Calabar,	2	4
Ponce,		1

Painters' Colours—

Bahia,	52 kgs.	1 brl. 12 cs
Belize,	90 tins 68	
Canoe,		4
Constantinople,	500	
Corfu,		4
Gibraltar,	40	
Montreal,		77 cks.
Nantes,		40
Para,	12 tcs. 46	3
Pernambuco,		4
Philadelphia,	20	1
Oporto,		1
Rio de Janeiro,		12 dm.
Salaora,	5	11
San Sebastian,	20	
Trieste,	12	
San Juan, P.R.,	150	1
Addah,	8	
Akassa,	43	
Antofagasta,		35 cs.
Assinee,	45	
Bilbao,		16
Callao,	310	20
Guayaquil,	59	5
Ibrail,	3 tcs.	45
Iquique,		45
Lagos,		2
Manaos,	10	10
Nassau,	25	2
Rangoon,		10

Paraffin Wax—

Valencia,	30 sks.	
Santos,	5 cs.	

Phosphorus—

St. John's, N.F.,	2 cs.	£23
Hioce,	10	130
Shanghai,	7	70
Yokohama,	30	358
Kobe,	6	60

Potassium Bichromate—

Constantinople,	11 c. 1 q.	£24
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Potassium Carbonate—

Rio de Janeiro,	10 c. 3 q.	£10
Baltimore,	12	12

Potassium Chlorate—

Hioce,	48 t.	£3,064
Gothenburg,	1	10 c.
Naples,	1	5
Boston,	10	608
New York,	27	1,556
Santos,	2	116
Libau,		56
Shanghai,	2	10
Gutajewsky,	1	66
Copenhagen,	1	10
B. Ayres,		10
Genoa,	2	133
Rotterdam,	1	15
Lisbon,		6
Yokohama,	5	296

Potassium Oxalate—

Boston,	12 t. 9 c.	£300
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Potassium Sulphate—

Montreal,	10 c.	£13
B. Ayres,	10	13

Pumice Stone—

Bombay,	12 cs.	
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Rosin—

Hamburg,	106 brls.	
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Salt—

Adelaide,	156 t. 1 c.	
Amsterdam,	166	
Antwerp,	175	
Benin,	10	
Boston,	293	10
Brisbane,	143	7
Cabinda,	6	8
Callao,	2	2
Cameroons,	63	10
Calcutta,	11,092	8
E. London,		18
Ghent,	370	
Halifax,	9	2
Hamburg,	144	
Melbourne,	80	
Montreal,	452	10
N. Orleans,	650	
Rangoon,	610	
Rio de Janeiro,		40 cs.
Rotterdam,	268	
Svendborg,	285	
Tabor,	5	
Tuborg,	700	
Victoria, B.C.,	109	
Akassa,	500	
Algoa Bay,	5	
Baltimore,	165	8
Charlotte Town,	30	
Drewin,	5	
Galveston,	751	10
Iceland,	45	
Landana,	19	5
Manaos,	14	15
M. Video,	2	8
Para,	477	9
Quebec,	200	
Victoria W.C.A.,	10	14

Saltpetre—

Ceara,	3 t. 6 c. 1 c.	£73
Piræus,	3	15
Cephalonia,		8

Sheep Dip—

Salt Lake City,	1 t.	£30
M. Video,	4	7 c.
Punta Arenas,	1	6
Galveston,	5	5
Durban,	3	3

Soap—

Addah,	10 bxs.	
Alexandria,	61	7 cs.
Algoa Bay,	2,766	6
Antigua,	100	
Antwerp,	15	
Bangkok,		1
Barbadoes,	700	
Bombay,	136	10
Bonny,	50	
Cabinda,	100	
Calcutta,		250 bdls.
Callao,	75	
Cape C. Castle,	100	14
Cape Town,	374	
Carthage,		1
Cette,	36	
Constantinople,	300	
Corfu,	6	
Durban,	125	
E. London,	1,480	51
Ferrol,	14	
Gibraltar,	450	
Grand Bassa,	15	
Kingston, Ja.,	200	1
N. Orleans,	50	
New York,	1,040	
Pt. Natal,	870	
Rangoon,	1,100	
St. Anne's Bay,	50	
St. John's, N.F.,	135	
St. Thomas, W.I.,		1
Saviamar,	300	
Shanghai,	4,699	
Singapore,	214	
Teneriffe,	833	
Trinidad,	191	1
Banoka,	20	
Batavia,	1,500	
Brussels,		400
Curacao,	150	
Galatz,	105	
Gr. Canary,		3
Landana,	100	
Las Palmas,	300	
Leghorn,	10	
Malta,	20	27
Mandiji,	100	
Mollendo,		1
Pt. Elizabeth,	145	50
Rotterdam,	145	
St. John's, N.F.,	10	
St. Lucia,	100	
San Juan,	300	
Tajmanfn,		2
Valparaiso,		5

Soda Alkali—

Corfu,	50 brls.	
Lisbon,	35	
Malta,	20	
Odessa,	150	
Para,	20	
Piræus,	100	
St. Domingo,	35	
Salonica,	35	

Soda Ash—

Antwerp,	10 cks.	750
Baltimore,	67	500
Barcelona,	45	
Boston,	127	00
B. Ayres,	434	400 brls.
Calcutta,	13	
Corfu,		09
N. York,	57	415 tcs.
Oporto,	6	
Para,		6 brls.
Philadelphia,	255 tcs.	1,200
Port Alegre,		100
Valencia,	12 cks.	
Varna,		100
Bombay,	11	
Catagena, Sp,	15	
Catania,		25
Copenhagen,		
Genoa,	51	
Havre,		100
Kingsey,		12
Maranham,	30	
Melbourne,	182	
M. Video,	50	
Montreal,	47	
Naples,		10
Norrköping,	91	
Puerto Cabello,	15	
Rio de Janeiro,	200	
Rotterdam,		350
Valparaiso,	50	

Soda Crystals—

Calcutta,	6 brls.	
Malta,	50	
Philadelphia,	167	
Quebec,	90	
Boston,	140	
St. John's, N.F.,		50 kgs.
B. Ayres,		100 cks.
Halifax,		25
Havana,	8	
New York,	65	
Singapore,	15	

Soda Salts—

New York,	10 cks.	
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Sodium Bichromate—

Antwerp,	2 cs.	
Calcutta,	750 kgs.	
Hamburg,	60 cks.	

Sodium Bicarbonate—

Adelaide,	135 kgs.	
B. Ayres,		169 cks.
Catania,	30	
Copenhagen,	20	18
Genoa,	105	4
Malaga,	40	10
Marseilles,	22	
Passages,	100	
Yokohama,	1,000	
Halifax,	350	
Hamburg,	236	2
Melbourne,	40	
M. Video,	55	10
Montreal,	150	
Singapore,	14	

Sodium Carbonate—

Barbadoes,	52 cks.	
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Sodium Chlorate—

Hamburg,	20 kgs.	
New York,	20	
Rotterdam,	30	

Sodium Oxide—

Phosphate—	
Bay, 27 t.	£54
Acid—	
Bay, 1 c.	£5
as, 1 c.	
ntinople, 1	
al, 3	
also, 1	
ha, 1	
ry, 4	
Lead—	
4 cks.	
Chloride—	
Y, 2 t.	£39

HULL.

Week ending September 16th.

Alum Sulphate—	
rp, 398 bgs.	
agen, 100	
urg, 1,057	
lam, 705	
478	
ing Powder—	
3 cks.	
70	
ize—	
agen, 2 cks.	
g, 20	
burg, 2	
8 cks.	
ic—	
dam, 24 cks.	
ate of Copper—	
ersburg, 12 cks.	
als (otherwise undescribed)	
rp, 20 cs. 54 cks. 6 pkgs.	
dam, 3	36
ania, 1	7
agen, 9	2
rk, 1	29
burg, 7	50
urg, 205	66
iberg, 1	8
dam, 10	5
ersburg, 27	245
26	212
66	15

Products—	
rp, 8 dms.	
isote	
21 cks.	
htha	
rg, 1 ck.	
rp, 230 t.	
rp, 3 cks.	
g, 2	
iburg, 150	
rg, 26	
gfors, 80	
5	
seed Oil—	
rp, 27 t. 7 c.	
h, 2	10
ania, 16	3
g, 2	10
iburg, 2	10
rg, 52	19
iberg, 10	11
dam, 31	11
6	15

Soda—	
gfors, 5 cks.	
iffs (otherwise undescribed)	
ania, 1 cs.	
urg, 100 bls.	
lam, 130	
7	1
6 cks.	
52	
ersburg, 16	10 dms. 410
d Oil—	
ania, 21 t. 2 c.	
ansand, 4	3
agen, 1	1
heim, 4	16
urg, 19	
gfors, 6	18
e—	
rk, 1,859 bls.	
urg, 232	
100	

Ochre—	
Antwerp, 3 cks.	
Hamburg, 2	
Painters' Colours—	
Antwerp, 6 pkgs. 36 cks. 2 cs. 33 dms.	
Amsterdam, 21	
Bremen, 1	
Bordeaux, 20	
Boston, 69	
Christiania, 32	112 pks.
Christiansund, 4	102
Copenhagen, 7	
Drontheim, 2	1
Dunkirk, 1	90
Flushing, 1	
Gothenburg, 4	
Ghent, 2	
Hamburg, 17	
New York, 170	
Rotterdam, 1	
Rouen, 1	
Reval, 1	
St. Petersburg, 97	1
Stettin, 21	
Riga, 45	
Salt—	
Christiania, 10 t.	
Soap—	
Christiania, 110 cs.	
Copenhagen, 1	
Drontheim, 40	
Hamburg, 1 ck.	
Varnish—	
Antwerp, 2 cks. 1 dm.	
Bergen, 1	
Flushing, 5	
Copenhagen, 2	bls.
Hamburg, 2	
Rotterdam, 2	
Zinc Chlorate—	
Harlingen, 20 cks.	

GLASGOW.

Week ending September 21st.

Ammonia—	
Philippines, £50	
Ammonium Sulphate—	
Valencia, 50 t. 7½ c.	£655
Rouen, 20	2
Nantes, 14	8½
210	
Aniline—	
Oporto, 7 t. 3 c.	£26
Asbestos—	
Singapore, 10½ c.	£106
Bleaching Powder—	
New York, 10 t. 8½ c.	£83
Borax—	
Christiania, 2 cks.	£14
Caustic Potash—	
Montreal, 11 t. 19½ c.	£106
Coal Products (otherwise undes.)	
Rotterdam, 19 drums.	£220
Coal Products—	
Creosote Oil	
Hong Kong, 350 glns.	£45
Christiania, 20 cks.	10
Pitch	
Bombay, 9 t. 7½ c.	£20
Barcelona, 600½	841
Oporto, 212	17½
Gothenburg, 56	10½
Italy, 26	17
Trouville, 460	120
Montreal, 41½	60
Tar	
Philippines, 7 c.	£34
Tar Oil	
Hamburg, 5 brls.	£2. 13s.
Colours—	
Alexandria, 40½ c.	£131½
Cottonseed Oil—	
Hamburg, 10 c.	£12
Linseed Oil—	
Alexandria, 2 t. ¾ c.	£46½
Bombay, 2	13½
Chili, 18½	24
Cape Colony, 7	8½
Philippines, 250 glns. 7	210
Logwood—	
Barcelona, 6 t. ¾ c.	£63
Oporto, 3	28
Magnesium Sulphate—	
Bombay, 15 t. 6 c.	£60
Manganese (Recovered)—	
Rouen, 5 t. 1 c.	£52
Naphtha—	
Rouen, 9 t. 9 c.	£140

Paint—	
Alexandria, 3 t. 9½ c.	£53
Port Said, 1	5
Chili, 406	
Rouen, 2	5
New York, 2	18½
Montreal, 2½	30
Painters' Colours—	
Singapore, £70	
Cape Colony, 53	
Philippines, 15 t. 18½ c.	324
Calcutta, 300	
Paraffin Wax—	
Peru, 1 t. 17½ c.	£56
Italy, 44	8½
Hamburg, 15	5 cs.
Nantes, 13	3½
367	
Potassium Bichromate—	
Japan, 5 t. 10½ c.	£210
Barcelona, 16	17
Oporto, 5	9
Boston, 8	5½
Rouen, 14	16
Rotterdam, 16 cks.	278
Italy, 7	1¾
Calcutta, 5	5½
Amsterdam, 12	192
New York, 22	14½
Bordeaux, 3	5½
130	
Potassium Prussiate—	
Rouen, 6 t. ½ c.	£361
New York, 9	¾
820	
Potassium Sulphate—	
Jersey, 10 t.	£75
Rosin Oil—	
Rotterdam, 25 brls.	£46
Soap—	
Chili, 2½ c.	£21
New York, 8 t. 8	133
Philippines, 1	5
22	
Sodium Bichromate—	
Rouen, 36 t. 6½ c.	£1,085
Barcelona, 5	17
Italy, 12	1½
Bordeaux, 1	14½
45	
Superphosphate—	
Jersey, 90 t.	£425
Tallow—	
Antwerp, 2 t. 3¾ c.	£50
Turpentine—	
Philippines, 3 t. 18½ c.	£118
Varnish—	
Cape Colony, £42	
White Lead—	
Hong Kong, 1 t. 5 c.	£27
Cape Colony, 4	79
Zinc White—	
Philippines, 1 t. 19½ c.	£67

TYNE.

Week ending September 16th.

Alkali—	
Amsterdam, 67 t. 12 c.	
Rotterdam, 3	6
Reval, 23	5
Amsterdam, 7	7
Alum Cake—	
Calcutta, 100 t.	
Copenhagen, 9	19 c.
Ammonium Carbonate—	
Genoa, 11 c.	
Ammonium Chloride—	
Genoa, 12 c.	
Anthracene—	
Rotterdam, 41 t.	
Antichlor—	
Gothenburg, 14 c.	
Antimony—	
Hamburg, 3 t. 10 c.	
Rotterdam, 2	
New York, 45	
Barcelona, 1	1
Arsenic—	
Barcelona, 1 t. 17 c.	
Barium Binoxide—	
Dunkirk, 10 t. 5 c.	
Barium Carbonate—	
Hamburg, 110 t. 16 c.	
New York, 34	9
Barium Hydrate—	
Antwerp, 50 t. 8 c.	
Bleaching Powder—	
Amsterdam, 46 t. 5 c.	
Lisbon, 11	
Antwerp, 99	12
Rotterdam, 12	3

Copenhagen, 16	10
Genoa, 36	16
New York, 204	6
Drontheim, 10	1
Gothenburg, 6	7
Reval, 30	4
Calcined Magnesia—	
Genoa, 1 t. 2 c.	
Caustic Soda—	
Antwerp, 10 t. 3 c.	
Genoa, 85	2
Hamburg, 21	3
Christiania, 4	18
New York, 5	16
Gothenburg, 50	4
Seville, 25	10
China Clay—	
Rotterdam, 1 t.	
Chloride of Lime—	
Bergen, 5 c.	
Copperas—	
Rotterdam, 5 t. 6 c.	
Litharge—	
Copenhagen, 2 t. 7 c.	
Magnesia—	
Antwerp, 1 c.	
Hamburg, 12	
Barcelona, 7 t. 8	
Oxalic Acid—	
Barcelona, 4 t. 11 c.	
Paint—	
Amsterdam, 1 t. 2 c.	
Bergen, 13	
Phosphorus—	
Genoa, 1 t. 15 c.	
Soda—	
Amsterdam, 25 t.	
Genoa, 20	2 c.
Christiania, 36	9
New York, 56	15
Soda Ash—	
Lisbon, 50 t. 10 c.	
Antwerp, 13	
Hamburg, 27	19
Aalborg, 10	10
Drontheim, 5	8
Gothenburg, 62	19
Sodium Hyposulphite—	
Genoa, 2 t. 3 c.	
Sodium Silicate—	
Bilbao, 8 t. 15 c.	
Sulphur—	
Antwerp, 17 t. 10 c.	
Gothenburg, 180	
Superphosphate—	
Frederikshavn, 339 t. 18 c.	
Tallow—	
Hamburg, 10 c.	
New York, 1 t. 2 c.	
White Lead—	
Copenhagen, 2 t. 16 c.	
New York, 2	10

GOOLE.

Week ending September 13th.

Chemicals (otherwise undescribed)	
Boulogne, 2 cks.	
Ghent, 3 dms.	
Hamburg, 40	2
Rotterdam, 4	04 bgs.
Coal Products—	
Pitch	
Antwerp, 236 t.	
Coal Products (otherwise undes.)	
Boulogne, 80 cks.	
Calais, 26	3 dms.
Dunkirk, 2	
Ghent, 21	
Rotterdam, 76	
Dyestuffs (otherwise undescribed)	
Boulogne, 1 cs. 4 pkgs.	
Ghent, 3 cks.	
Phosphatic Manure—	
Aalborg, 343 t.	

GRIMSBY.

Week ending September 16th.

Chemicals (otherwise undescribed)	
Dieppe, 1 ck.	
Hamburg, 28	13 cs.
Coal Products (otherwise undes.)	
Dieppe, 1 cs. 107 cks.	
Dyestuffs (otherwise undescribed)	
Dieppe, 2 cks. 4 pkgs.	

PRICES CURRENT.

WEDNESDAY, SEPTEMBER 27th, 1893.

PREPARED BY MESSRS. HIGGINBOTTOM AND CO., 116, PORTLAND STREET, MANCHESTER.

The values stated are F.O.R. at maker's works, or at usual ports of shipment in U.K. The price in different localities may vary.

Acids:—				£	s.	d.					£	s.	d.
Acetic, 25 % and 40 %	per cwt.	7/-	&	10/6	Lime, Acetate (brown) .. .	per ton	6	10	0				
" Glacial	"			50/-	" " (grey)	"	11	0	0				
Arsenic S.G., 2000°	"	0	14	6	Magnesium (ribbon and wire)	per oz.	0	2	3				
Fluoric	per lb.	0	0	3 1/4	" Chloride (ex ship)	per ton	2	7	6				
Muriatic (Tower Salts), 30° Tw.	per bottle	0	0	10	" Carbonate	per cwt.	1	17	6				
" (Cylinder), 30° Tw.	"	0	3	0	" Hydrate	per ton	17	0	0				
Nitric 80° Tw.	per lb.	0	0	13 1/4	" Sulphate (Epsom Salts)	per ton	2	19	0				
Nitrous	"	0	0	13 1/4	Manganese, Sulphate	"	17	15	0				
Oxalic	nett	0	0	3 1/4	" Borate	per cwt.	2	12	6				
Phosphoric, 1750°	"	0	1	2 1/2	" Ore, 70 %	per ton	4	5	0				
Picric	"	0	1	0	Methylated Spirit, 61° O.P.	per gallon	0	2	0				
Sulphuric (fuming 50 %)	per ton	15	10	0	Naphtha (Wood), Solvent	"	0	3	9				
" (monohydrate)	"	5	10	0	" Miscible, 60° O.P.	"	0	4	9				
" (Pyrites, 168°)	"	3	0	0	Oils:—								
" " 150°	"	1	5	0	Cotton-seed	per ton	24	0	0				
" (free from arsenic, 145°)	"	1	6	0	Linseed	"	22	10	0				
Sulphurous (solution) S.G. 1025	"	3	0	0	Lubricating, Scotch, 890°—895°	"	7	5	0				
Tannic (pure)	per lb.	0	1	2	Petroleum, Russian	per gallon	0	0	4				
Tartaric	"	0	0	11 1/2	" American	"	0	0	5 1/4				
Arsenic, white powdered	nett	13	10	0	Potassium (metal)	per oz.	0	3	7				
Alum (loose lump)	"	5	2	6	" Bichromate	per lb.	0	0	4 1/2				
Alumina Sulphate (pure)	"	5	0	0	" Carbonate, 90% (ex ship)	per ton	16	15	0				
Aluminoferic	"	2	10	0	" Chlorate	per lb.	0	0	8 1/4				
Aluminium	per lb.	0	4	0	" Cyanide, 98%	"	0	2	0				
Ammonia, Anhydrous	"	0	1	2	" Hydrate (Caustic Potash) 80/85 %	per ton	21	10	0				
" " 880°=28°	per lb.	0	0	3	" " (Caustic Potash) 75/80 %	"	20	10	0				
" " =24°	"	0	0	2 1/4	" " (Caustic Potash) 70/75 %	"	20	0	0				
" Carbonate	nett	0	0	3 1/4	" Nitrate (refined)	per cwt.	1	2	6				
" Muriate	per ton	23	10	0	" Permanganate	per cwt.	3	5	0				
" " (sal-ammoniac) 1st & 2nd	per cwt.	37/-	&	35/-	" Prussiate Yellow	per lb.	0	0	9				
" Nitrate	per ton	42	0	0	" Sulphate, 90 % (ex ship)	per ton	9	15	0				
" Phosphate	per lb.	0	0	10 1/4	" Muriate, 80 % (do.)	"	8	0	0				
" Sulphate (grey) London		Nominal			Silver (metal)	per oz.	0	2	10 1/2				
" " (grey) Hull		Nominal			" Nitrate	"	0	2	10				
Aniline Oil (pure)	per lb.	0	0	5 1/2	Sodium (metal)	per lb.	0	3	4				
Aniline Salt	"	0	0	5 1/4	" Carb. (refined Soda-ash) 48 %	per ton	5	10	0				
Antimony	per ton	45	10	0	" " (Caustic Soda-ash) 48 %	"	4	10	0				
" (tartar emetic)	per lb.	0	1	0	" " (Carb. Soda-ash) 48 %	"	4	10	0				
" (golden sulphide)	"	0	0	10	" " (Carb. Soda-ash) 58 %	"	4	10	0				
Barium Chloride	per ton	7	10	0	" " (Soda Crystals)	"	2	17	6				
" Carbonate (native)	"	3	10	0	" Acetate (ex-ship)	"	16	0	0				
" Sulphate (native levigated)	"	45/-	to	75/-	" Arseniate, 45 %	"	11	0	0				
Bleaching Powder, 35 %	nett	8	10	0	" Chlorate	per lb.	0	0	8 1/4				
" Liquor, 7 %	"	3	10	0	" Borate (Borax)	net, per ton	28	10	0				
Bisulphide of Carbon	"	11	15	0	" Bichromate	per lb.	0	0	3 1/4				
Chromium Acetate (crystal)	per lb.	0	0	6	" Hydrate (77 % Caustic Soda)(f.o.b.) net pr. ton		12	10	0				
Calcium Chloride	per ton	2	5	0	" " (74 % Caustic Soda)	"	12	5	0				
China Clay (at Runcorn) in bulk	"	17/6	to	35/-	" " (70 % Caustic Soda)	"	11	5	0				
Coal Tar Products and Dyes:—													
Alizarine (artificial) 20 %	net	per lb.	0	0	8	" " (60 % Caustic Soda)	"	10	5	0			
Magenta	"	"	0	3	9	" " (60 % Caustic Soda, cream) (f.o.b.)	"	10	0	0			
Anthracene, 30 % A, f.o.b. London	per unit	per cwt.	0	1	2	" Bicarbonate	"	7	0	0			
Benzol, 90 % nominal	"	per gallon	0	1	5	" Hyposulphite	"	6	10	0			
" 50/90	"	"	0	1	5	" Manganate, 30%	"	16	0	0			
Carbolic Acid (crystallised 40°)	per lb.	0	0	6 1/4	" Nitrate (95 %) ex-ship Liverpool	per cwt.	0	9	3				
" (crude 60°)	per gallon	0	1	6	" Nitrite, 98 %	per ton	29	0	0				
Creosote (ordinary)	"	"	0	0	1	" Phosphate	"	15	0	0			
" (filtered for Lucigen light)	"	"	0	0	1 1/4	" Prussiate	per lb.	0	0	7			
Crude Naphtha 30 % @ 120° C.	"	"	0	0	8	" Silicate (glass)	per ton	5	7	6 1/4			
Grease Oils, 22° Tw.	per ton	2	5	0	" " (liquid, 100° Tw.)	"	4	5	0				
Pitch, f.o.b. Liverpool or Garston	"	"	1	5	0	" Stannate, 40 %	per cwt.	3	0	0			
Solvent Naphtha, 90 % at 160°	per gallon	0	1	0	" Sulphate (Salt-cake)	per ton	1	4	0				
" Lucigen " and " Wells Oils	"	"	0	0	1 1/2	" " (Glauber's Salts)	"	1	10	0			
Copper	per ton	42	5	0	" Sulphide	"	8	10	0				
" Sulphate	"	"	16	0	0	" Sulphite	"	5	15	0			
" Oxide (copper scales)	"	"	40	0	0	Strontium Hydrate, 100%	"	8	10	0			
Glycerine (crude)	"	"	13	0	0	Sulphocyanide Ammonium, 95 %	per lb.	0	0	7			
" (distilled S.G. 1250°)	"	"	43	0	0	" Barium, 95 %	"	0	0	5 1/4			
Iodine	nett, per oz.	0	0	9	" Potassium	"	0	0	7				
Iron Sulphate (copperas)	per ton	1	12	6	Sulphur (Flowers)	per ton	8	0	0				
" Sulphide (antimony slag)	"	"	2	0	0	" (Roll Brimstone)	"	6	10	0			
Lead (sheet) for cash	"	"	11	0	0	" Brimstone : Best Quality	"	4	2	6			
" Litharge Flake (ex ship)	"	"	13	0	0	Superphosphate of Lime (26%)	"	2	7	6			
" Acetate (white ")	"	"	25	15	0	Tallow	"	28	0	0			
" " brown ")	"	"	17	10	0	Tin	"	79	15	0			
" Carbonate (white lead) pure	"	"	20	0	0	" Crystals	per lb.	0	0	6			
" Nitrate	"	"	20	0	0	Zinc (Spelter)	per ton	17	2	6			
						" Chloride (solution, 96° Tw.)	"	5	15	0			

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THE NEW RIVERS POLLUTION PREVENTION BILL.

MANY of our readers will not require to be told that a
new Rivers Pollution Prevention Bill, applicable to the
whole of England, has passed through the House of Lords,
where it originated, and is now before the House of Commons.
In the main it is a very good Bill, and, if there is a chance,
will probably pass into law, as the Local Government Board
has withdrawn its opposition, having arranged certain amend-
ments with the promoters.

The memorandum we give in full, so that our readers may
be kept posted in the aims and intentions of the powers that
be:—

"The principal object of this Bill is to improve the law for prevent-
ing the pollution of streams by extending to the whole of England (so
far as applicable) the provisions of the Mersey and Irwell (Private) Act
of 1892. Owing to the numerous amendments made by that Act in
the Rivers Pollution Act of 1886, and to the confusion that would be
caused by leaving the Act of 1876 applicable to the sanitary authorities
while introducing a new law for County Councils, it seems desirable to
comprehend in the present Bill the whole statute law relating to river
pollution, and to extend the powers of all local authorities.

New clauses and provisions are added:

- (1). To prevent the pollution of streams by canals (cl. 7);
- (2). To qualify justices to act, though they are members of the local
authority or ratepayers (cl. 13);
- (3). To guard against simultaneous prosecutions for the same
offences (cl. 16, proviso);
- (4). To empower any local authority to contribute to the expenses of
a prosecution by any other authority (cl. 18 (3));
- (5). To somewhat extend the powers of inspecting drains, but with a
limitation to reasonable times (cl. 19);
- (6). To empower the Local Government Board to order in certain
cases the rating of areas specially benefited (cl. 20, proviso).

Following the procedure of the Mersey and Irwell Act, which has
hitherto been found effective in practice, a court of summary jurisdiction
with appeal to Quarter Sessions has been substituted for the County
Court with appeal to the High Court (cl. 11 and 12).

We have said that this Bill is good in the main, but it is
weak in that it keeps to the plan of leaving the administration
of the Act (if it should pass into law in its present form) in
local hands, in most cases the County Councils'. These are
no doubt better than the many and minor Local Boards and
Rural Sanitary Authorities, but they are not exempt from
local influences, and their power does not seem so direct or
swift as that of a Chief Inspector to the Local Government
Board itself.

The Local Government Board having had thirty years'
experience with the working of the Alkali Acts, and knowing
that now, more than 99 per cent. of the gaseous sewage that
was once turned out into the atmosphere has been sup-
pressed, should surely have insisted on similar methods of
inspection and administration in the case of liquid sewage.

There is no doubt it was high time that some attempt
should be made to improve the Rivers Pollution Act of 1876

which gave so little power to the Inspector, even if it authorised his appointment as a permanent official, which is very doubtful; but when a change is made we hope it will be on no uncertain lines, and instituted in such a manner that manufacturers in one county will not be accorded more severe treatment than is meted out to them in another. A difference in treatment may possibly happen yet, for it will be nothing short of a miracle if all the County Councils of the country agree upon a common basis and to a similar standard of purification. We urge again a careful consideration of the Alkali Acts: the Inspector and his staff have for 30 years gained the consideration and respect of all with whom they have been brought in contact, and taken in conjunction with the fact that at the most only one per cent. of noxious principles are now evolved (instead of the whole as thirty years ago), without recourse to unnecessary prosecutions, we say that such a state of things speaks volumes for the soundness of the methods. Indeed, we may say that though the Alkali Acts were primarily passed to prevent damage by noxious vapours, no small share of River Pollution work has fallen to its inspectors. The pollution of the rivers of South Wales by waste from the tin-plate works, was practically stopped by Mr. A. E. Fletcher, under the Chief Inspectorate of the late Dr. Angus Smith, while as Chief Inspector he has shown, Act or no Act, that pollutions may be satisfactorily arrested when dealt with by a bold and skilful hand, supported by a central impartial authority.

Contrast the present state of affairs under the Alkali Act and its few prosecutions with the Mersey and Irwell Act of 1892. The Irwell—certainly not any better than it was before the passing of the measure—and the committee up to their eyes in prosecutions.

We believe that all this comes about by reason of the Committee of the Joint Authority refusing to fix a standard for purification. There are many methods of fixing a standard, and perhaps it may be true that it requires a man with a thorough grasp of his subject to do this; but the fact that one man is not able to do it is no argument as to its impossibility. When the Alkali Acts were first mooted 95 per cent. of condensation was spoken of as an impossibility; but we find now that 99 per cent. is attained. With liquid sewage the retention of 90 per cent. of the putrescible matter should be aimed at, and we see no objection to the selection of this figure, as there are processes which claim to do even more than this at a very moderate cost. But if 90 per cent. be considered too high a standard, then let it be fixed, even temporarily, at 80 per cent., or even 70 per cent.; at any rate, let us have a standard, as at the present moment manufacturers are entirely at the mercy of any chemist that the Joint Committee may from time to time appoint. The adoption of a definite standard of purity, even if only temporary, would thus clear the way to a general understanding; and no doubt every manufacturer would endeavour to emulate or even surpass his neighbours' efforts.

To come back to the Bill, one portion of clause 28 needs amendment: "'Solid matter' shall not include particles of matter in suspension in water." This definition if retained in the present form will prove a bone of contention—it may as well be more clearly defined at the outset. Clause 3c deals with "solid sewage matter," &c., clause 6 with "liquid polluting matter," but where is solid sewage in suspension in water dealt with? It may be urged that common sense will dictate, but unfortunately common sense is not always law.

ALLEGED PRECIPITATED CHALK FRAUD

LAST week at the Guildhall, before Alderman Davies, Alderman Levermore and Charles Randolph Levermore, of 8, Lime E.C., were brought up on remand, charged with conspiring to sums of money from Isidor Magnus and others by means of falsifications, with intent to defraud. Letters seem to have been received from various persons signing themselves C. Williamson, C. Randolph and J. Saunders, by certain firms asking for quotations for precipitated chalk. Among the firms who received letters of this nature Messrs. Spies Bros. and Co., Messrs. R. W. Greef and Co., Messrs. Fuerst Bros., Messrs. R. Morrison and Co., Messrs. Christoph and Co., Messrs. T. Tyrer and Co.

The Manager, representing Messrs. Fuerst Bros. gave evidence to the effect that he received a letter signed C. Randolph, and dated from 71, Oscar-street, Lewisham High-road, asking for quotation for delivery of five or six tons from March to June inclusive. He believed it to be a genuine inquiry. He knew Messrs. Levermore and Randolph to be the only firm who dealt in precipitated chalk, and he accordingly wrote to them. In reply he received a letter dated February 1st, 1901, quoting £13. per ton; whereupon he wrote Randolph quoting £11. per ton, and received a letter accepting on February 10th. On same date he received a letter from Messrs. Levermore and Co., requesting him to inform per bearer whether their quotation was accepted. On February 13th he wrote Randolph requesting reference. A reply was received that cash would be paid with order. On February 13th he wired to Randolph that contract was all right provided reference satisfactory, and also wrote him. He replied again that cash would be paid. Ultimately he sent them a deposit of £15., whereupon he gave Messrs. Levermore an order for 24 tons of precipitated chalk at £13. per ton, net. On February 21st, a letter was received from Randolph that arrangements had fallen through, and asking him to cancel the contract and return the deposit. This they declined to do, and after a further letter from Randolph on February 28th they received no more from him. Witness's firm then endeavoured to get the contract cancelled with Messrs. Levermore, but without success, and was obliged to take delivery of the whole 24 tons.

Mr. Thomas Tyrer, Stirling Chemical Works, Stratford, deposed that having received the usual letter for quotation, signed J. Saunders, on 26th July he wrote accepting the contract. Previously, he had purchased four casks of the chalk from Messrs. Levermore at £11. per cask. After correspondence with Saunders the contract was arranged for the order for 25 tons at £12 per ton given to Messrs. Levermore. On August 9th he received their first delivery order for 14 casks, weighing 6 tons, and paid them £71 15s. 4d. for same. He had not tried the chalk, but endeavoured to get Messrs. Levermore to cancel the contract. On 11th August he received a letter from Saunders that he could take the chalk, as his arrangements had fallen through. He thereupon refused to take any further delivery from Messrs. Levermore. There was no intrinsic value to be fixed for the stuff. It was worth much as it would fetch. The lighter chalk was of more value than the heavier, and the latter had a very limited sale. He believed Saunders to be a genuine buyer. Did not know he was Levermore's brother. If he had he would not have made the contract with him. He had told him to go to his brother. He would not give any evidence for such an article unless he had an order for it.

Cross-examined: 230 tons a year would be a fair sale. As to precipitated chalk, he was not aware that it had an extensive sale. His experience of it was that it was an unsaleable article. It was a light article that druggists and perfumers used. It was employed in making dentifrices. He had also heard of its use in the manufacture of soda water. He could not say what would be his loss on the transaction. There was such a quantity at present on the market that it would take some time to get rid of it. 130 tons would be a very fair sale for one man, but as a supply for the whole market it was very limited.

Mr. Birch, of the Canterbury waterworks, said he had supplied Messrs. Levermore for 17 years, and supplied them with chalk, which was precipitated from the water in the reservoir. The price he paid was 35s. a ton, and he had supplied Messrs. Levermore with 10 tons in August and September. He had made a contract with them not to supply to anyone else. There were other makers who supplied such stuff, but not of that quality. It was a marketable commodity.

Inspector Wright produced various papers found at Messrs. Levermore's office, and in the handwriting of Augustus Levermore, including an opinion. One of them was a draft or copy of the letter asking for quotations. There was also on it a list of the firms to whom the letters had been sent. The letters produced in this case, signed C. Williamson, J. Saunders, or C. Randolph were, to the best of his belief, in the handwriting of the defendant, Charles Randolph Levermore.

For the defence, it was contended that the article was a marketable one. Alderman Davies said, however, they were not dealing with whether it was a marketable article or not. The question was whether the persons who bought the stuff were defrauded by Charles Randolph Levermore.

Levermore under the names Saunders, Randolph and Williamson, and by his brother, Augustus Levermore.

Defendants were committed for trial at the Central Criminal Court, bail being allowed as before.

MANUFACTURERS AND RIVER POLLUTION.

LOCAL GOVERNMENT BOARD INQUIRIES.

THE HANDFORTH PRINTING COMPANY.

ON Thursday of last week, Mr. Rienzi Walton, an inspector of the Local Government Board, held an inquiry in the Drill Hall at Wilmslow with reference to an application by the Joint Committee of the Rivers Mersey and Irwell for consent to take proceedings against the Handforth Printing Company, Handforth, near Stockport, in respect of offences alleged to have been committed by them under section 5 of the Mersey and Irwell Joint Committee Act, 1892.—Mr. Sutton, counsel for the Joint Committee, called Mr. W. Wilson, assistant clerk to the Joint Committee, Mr. R. A. Tatton, chief inspector, Mr. F. Salkeld, sub-inspector, Mr. C. Estcourt, chemist, and Dr. Fox, medical officer of health for the Mid-Cheshire district, all of whom gave evidence with regard to the alleged offence. They stated in effect that further up the river Dean there were four or five small works, but all of these, with the exception of a bleachworks, were treating the effluents from their works, and by the time the river got to about a quarter of a mile below Bollington the water was not polluted to such an extent as to make the pollution visible to the eye. From the Handforth Printing Company's works, however, a very bad effluent was sent into the river, and although repeated complaints had been made, practically nothing had been done to remove the nuisance. Since they were threatened with proceedings the Company had begun to provide additional settling and filtering arrangements. It was proposed, however, to use for filtering purposes iron baskets filled with coke or charcoal, and the Joint Committee did not consider these would be efficient. They said that it was quite possible to make arrangements by which the effluent should be entirely purified, and they insisted on this being done. Dr. Fox was particularly emphatic in his description of the nature of the nuisance. He said that ever since he had known the Handforth Print-works and the Dean river there had been a continuous succession of complaints. He had never seen the river otherwise than in a fearfully polluted condition. For several days in the week the water had the appearance and consistency of blood, at other times it was yellow in colour, and again it was like thick milk. Cattle would not look at it; he knew farmers who had gone to the trouble and expense of fencing their fields in, so as to keep the cattle away from the water. Fancy Manchester people drinking milk given by cows that took such a mixture! It would be absolutely poisonous. All the gentlemen in the neighbourhood—Mr. Crewdson, Mr. Cunliffe, Major Greg, and others—complained. Major Greg, in a letter received from him, spoke of the condition of the river as "villanous" and "a disgrace to civilisation." He (Dr. Fox) said that while Major Greg's adjectives were perhaps stronger than he himself would have used, they were not too strong for the serious nature of the offence.—Mr. Watson, the owner of the works, who attended the inquiry in the company of his manager, asked the witness if he was not aware that cattle did drink the water.—Dr. Fox said he rather doubted it. If it were so, he was very sorry for the cattle and also for their owners.—Mr. Watson said he could prove they drank it without any bad effects.—Dr. Fox added that the company was certainly the worst polluters he had known in the course of his experience.—Mr. Watson retorted that in that case Dr. Fox's experience must be very limited. In evidence he afterwards gave, Mr. Watson said that before any pressure was brought to bear upon him he endeavoured to reduce the pollution as much as possible. It turned out that what he had done, and done at considerable expense, was not satisfactory, and he was quite willing to do what he could to meet the requirements of the Committee. Works for this purpose were already in progress, and they would be completed within three months at the latest.—The Inspector: To the satisfaction of the Committee?—Mr. Watson: Well, we hope so; but they won't tell us what to do, you know.—The Inspector: I suppose it is no part of their duty to do that.—Mr. Watson: No; and so we can only hope to do what we hope will please them.—Mr. Sutton said Mr. Watson made no promise to meet the views of the Committee until he knew that proceedings were about to be taken. Even now, however, if he would do the work to the satisfaction of the Committee he would hear nothing more of the matter. But it was desired that the order should be made, so that if the works were not properly carried out he might be brought before the proper tribunal.—The inquiry then closed.

THE HOLLINGWORTH PRINT-WORKS.

On Thursday, 28th ult., Mr. Dalton held an inquiry at the Gun Inn, Hollingworth, into a similar application with reference to the pollution by the Hollingworth Printworks of the river Etherow, which runs into the Mersey. Evidence was given to show that both the river and the

air were being polluted, and that there was no engineering difficulty in the way of the removal of the nuisance. The manager of the works (Mr. Riley) said tanks were now being constructed, and it was hoped they would be ready in a month.—Mr. Sutton, for the Joint Committee, said he hoped the order would be made, although nothing would be done under it if satisfactory arrangements were made for dealing with the effluent.—The Inspector will report to the Local Government Board, who will in due course give their decision.

Our Book Shelf.

SEWAGE TREATMENT AND DISPOSAL.—By Thomas Wardle; 408 p.p., several plates and 56 figures in the text. London and Manchester: John Heywood, 1893, 15s.

This is a work that will be found very useful to those who desire to know something more of sewage and sewage treatment, than can otherwise be readily ascertained by the ordinary man of business. Even those who have the leisure to abstract information of this character from other works of reference, will find plenty of food for reflection in the information the author has got together on this subject. As an exponent of fact, when demonstrable by analysis, or by accurate statistics, we agree with much the author has to say; and in several of his opinions and conclusions we feel compelled to join issue with him; space, however, will not allow us to go further into detail. The work before us shows clearly that the sewage problem has not remained unsolved for want of workers (both amateur and professional) at the subject. We have, on several occasions pointed out in these columns the necessity of chemistry and engineering being each accorded its due share of responsibility in the treatment of sewage, and a study of Mr. Wardle's book shows us how correctly our opinions have been founded. A glance over its pages will show at once that most of the processes described give a very fair amount of purification when properly performed, but, unfortunately, the *luxury* of the "authorities," who are better censors than experimentalists or manufacturers, has got many a process into trouble.

The real fact is that the Local Government Board are greatly to blame in the matter of river pollution. Under the Act of 1876 there was but little provision made for efficient inspection, and what little inspection it sanctioned was discontinued by the Board in 1884 on its own initiative. The Bill for the Prevention of River Pollution now before the House of Commons is faulty in this respect also, but it is not yet so late to devise a remedy. Up to now there has been no censorship over the sanitary (?) authorities and their method of dealing with sewage; in many cases they have managed to successfully hoodwink all the authorities that be, and even under the new Bill this state of things will continue, unless some effort be made to secure inspection by the central authority. The method of inspection may be a debatable point, but we should think that described by the author on page 100 would tend to secure a pure effluent.

As the point of the joke lies in the application of it we reproduce the author's paragraph, and conclude by directing the attention of the inspector-appointing authority to it. Writing of the Birmingham effluent, he says:—"I was told by Alderman Barrow of a very drastic test of the state of the effluent, viz., that the members of the sanitary committee go periodically down to Tyburn to test its purity—I will not say by drinking, but by tasting." It would be well if this duty were imposed upon all sanitary authorities by Act of Parliament under a heavy penalty for disobedience.

Correspondence.

* * We do not hold ourselves responsible for the opinions expressed by our correspondents.

QUERY:—BREAKING STRAIN.

A correspondent sends the following query:—"Wanted, breaking strain and factor of safety of a beam $1\frac{1}{2}$ inches metal, $\frac{1}{2}$ section 8 inches wide and deep. Test when points of support are 5 feet apart. Metal, good foundry cast iron. W. H. H.

ANSWERS TO CORRESPONDENTS.

E. A.—Received with thanks.

W. H. H.—Next week most likely.

C. H.—Thanks for information.

J. L. AND H. BROS.—We are awaiting the favour of a reply.

G. J. H. AND CO.—Thanks for notification.

C. A. P. R.—The change has been duly noted.

G. M. AND CO.—They have been sent on.

INVESTOR.—We are afraid we cannot help you. We know of nothing against it but it does not strike us as being anything specially tempting, and it is a trade in which the competition war is waged a *l'entrance*.

THE COMMERCIAL PRODUCTION OF OZONE.

(Specially contributed.)

COMMERCIAL people may with some justice certainly be disposed to treat in a supercilious way any proposal to make ozone on a commercial scale. Truly much time has been spent in endeavouring to produce this compound cheaply in quantity, but of late years much greater advances have been made in a comparatively short time than were made in the whole of the fifty and odd years which have elapsed since the discovery of the compound by Schönbein.

It may be again urged that the success of the later improvements was not long lived, but it must be remembered that if success is to attend the production of ozone on the commercial scale its production must be contemplated with as much calm, practical common sense, as there has been rhapsodical effusion about its prodigious properties.

Now that ozone is played out as a nine-days' wonder, and the mention of it fails to fire the feverish imagination of the optimist, there is much more chance of something really being done. The latest advances certainly point in this direction, for the cheapest and most successful apparatus for producing ozone continuously has been devised in the lull which followed the "booming" of ozone a few years since.

There is another feature which augurs well for the success of more modern inventions, and that is their simplicity. Complications which abounded begin to give place to the simplest of ozonisers, which are, however, very effective.

It is rather interesting to note the similitude between the earliest ozonisers and those put forward some two or three years ago. In order to do this we are able, thanks to the courtesy of Mons. E. Andreoli, to reproduce illustrations of the earliest ozoniser and that brought out thirty-four years later. (Figs. 1 and 2.)

The first ozone tube was made by Siemens in 1857, and consisted of two tubes of very thin glass placed one within the other, leaving a small annular space between the two tubes. The outside of the outer tube, and the inside of the inner tube is coated with tinfoil and connected respectively to the poles of an induction coil, as shown in the accompanying illustration—



FIG. 1.

Numerous other ozonisers were produced in the course of the next fifteen years, but the next contributor to the general production of ozone was Houzeau. His ozonisers, first made in 1872, are to be seen almost everywhere in laboratory use. To him much of the later success is due, as to him it is we owe our knowledge of the nature of ozone, and the best conditions under which it can be produced. In fact he may well be styled the founder of the science of ozone production, for he also in conjunction with Thénard did much to improve the methods for the determination of ozone. About three years later Dr. Spottiswode first applied a dynamo to a Ruhmkorff coil as a transformer, by connecting the primary circuit with an alternating dynamo. Although ozonisers to produce ozone for commercial purposes, such as maturing spirits, etc., were devised by Brin Bros. and others, it was as late as 1891 that ozone began to make a claim on manufacturers. At this time Siemens and Halske patented their ozoniser, which is shown in the cut, fig. 2. Though an advance on the invention of Siemens in 1857, still there is very little alteration in principle, and this ozoniser can scarcely rank as a commercial generator, since from such a point of view it is little better than a toy.

It consists of two tubes, the second of which is placed in the larger limb of the U shaped tube, leaving a small annular space between the two outer walls of the tubes. This inner tube and also the exterior rectangular vessel are filled with acidulated water, a platinum electrode dipping into each of them. The air to be ozonised enters from the left into the annular space previously referred to, and passes away by the narrow limb of the U tube.

Not long after its introduction the Ozone Manufacturing Company was started in New York, but a few months since the works were closed and offered for sale to meet the claims of its creditors. About this time a number of experiments were made by Dr. Fröhlich on the uses of ozone, and further information on the subject has already been published in this *Journal* [No. 189, p. 14.]

Fahrig in 1892 had an electrostatic process working at Marseilles, U.S.A. His generator, though much more simple than many of its predecessors, still left room for improvement in the direction of simplicity. It consisted of flat sheets of aluminium, placed between

sheets of glass, and disposed between rows of glass tubes, each containing a rod of metallic aluminium. This almost brings us down to the present time, for it was in the same year that the first open ozoniser was invented by Emile Andreoli.

The ozoniser shown here (Fig. 3) is one of the earlier forms made by the inventor, and shows the air injector attached. It consists

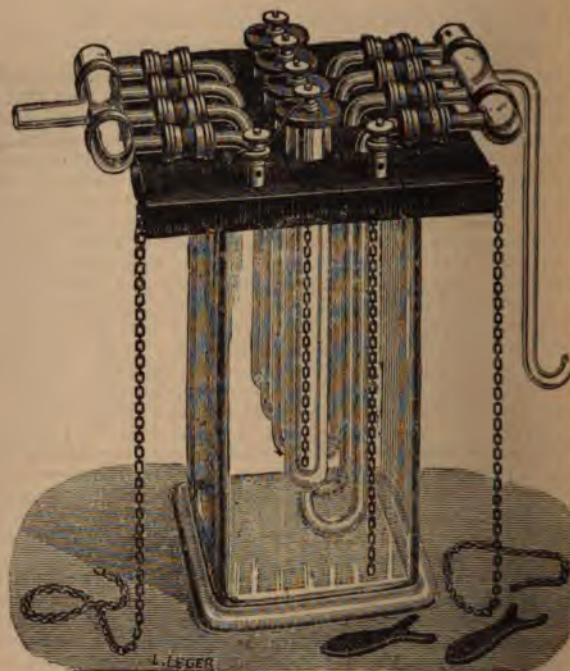


FIG. 2.

perforated metal armature fixed on a glass cylinder, which in turn contains a double pointed cylinder, one of the sides of which faces the outer armature, and the other, a central glass tube containing a metal rod. But this ozoniser even does not exactly rank as a commercial ozoniser. In connection with ozonisers of this type we are pleased to be able to give our readers an illustration (fig. 4) of some of the ozonisers used by Mons. Andreoli for the production of ozone on a commercial scale at Bethnal Green. The chief feature is the complete installation for

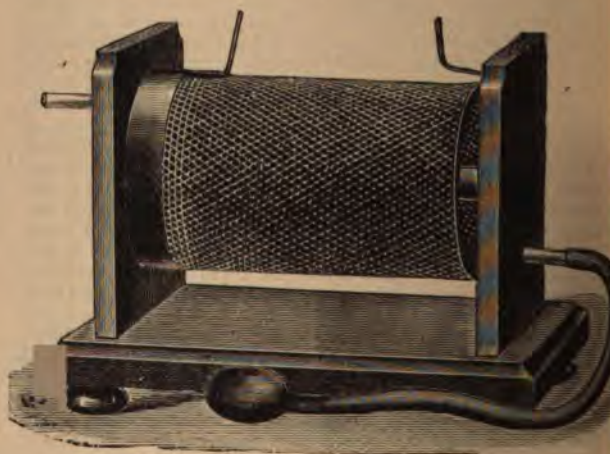


FIG. 3.

production of ozone, which is shown. On the left-hand side will be seen coming through the floor a pipe, which is connected with a Sturtevant blower, which forces the air through the filtering-box. From this box, where it has traversed a cotton wool or other filter, the air goes through a large cooling apparatus, covered with a cloth which is kept moist. On this refrigerator is shown a serrated wire grid (shown in detail in fig. 5) and the glass sheet and tin plate which accom-

t, and which are used in the construction of the ozoniser. The third box is a dryer containing sulphuric acid and coke, and the fourth is an ozone generator made of ten grids such as the one on the cooler.

With such an ozoniser connected to a 10,000 volts transformer, worked by a 1 unit Pyke and Harris alternator, 250 feet of well ozonized air per minute can be obtained.

There are, however, several forms of commercial ozonisers; the one

The music stand ozoniser which stands before the drying box is extremely efficient. The pointed grid electrode is fixed on another grid made of round or flat glass tubes, each containing a metallic gauze core, forming the other electrode.

The last improvement of this inventor is an open luminous ozoniser, in the shape of an incandescent lamp, or of a vacuum tube surrounded by a spiral made of serrated wire, the points of which are close to the glass bulb.

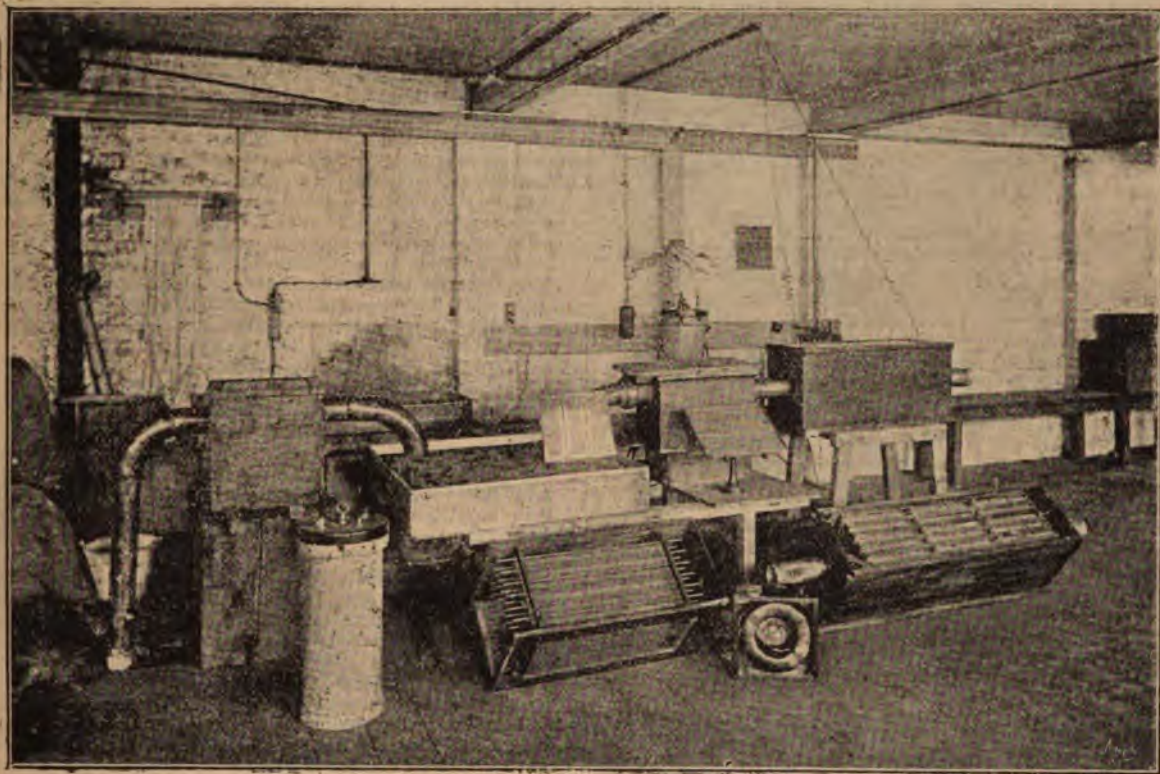


FIG. 4.

shown below the refrigerator is made of double-pointed metallic combs, connected together at their opposite ends by wires which are coiled round a glass tube containing metallic gauze.

The apparatus on the floor in (fig. 4) on the right-hand side is larger and more powerful, although the number of electrodes is not very great. Six ozonisers of similar size, worked by a 6 h.p. engine, and one or

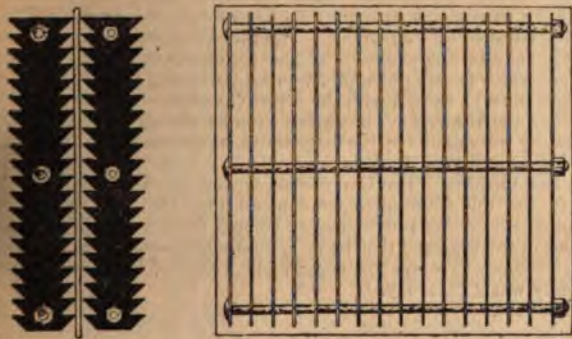


FIG. 5.

more high tension transformers of convenient efficiency would produce an enormous amount of ozone for commercial purposes.

Between the two ozonisers one of these transformers is shown; it is of the ring shape (about 6,000 volts) and was constructed by Messrs. Pyke and Harris.

The cylindrical transformer, which stands out clearly on the left is a twinburne transformer.

Large vacuum tubes can be illuminated by transformers, and the effect of the opal, violet or rather crepuscular luminosity is very pleasant, at the same time a strong smell of ozone pervades the atmosphere.

The silent discharge cannot be seen on the inside of the glass bulb which appears to be filled with a luminous matter, which seems to move about with astonishing rapidity. An ordinary lamp, with its armature of metallic points gets splendidly luminous when connected with the pole of a one-inch Ruhmkorff coil, worked by five Leclanché cells, and the quantity of ozone is by no means inferior to that produced by the other ozonisers.

So far, the first desideratum, the cheap production of ozone on a large scale, is *un fait accompli*.

Asked by us with regard to the application of ozone, Mons. Andreoli says that he can successfully mature and improve wines and spirits by means of ozone, and is experimenting in that direction; that he is not yet quite satisfied with the quality of the drying oils he made, by passing ozone through linseed or other oils in the cold state. But it must be remembered that the commercial applications of ozone are only imperfectly studied, and there is nothing, as yet, to prevent ozonised oils being the cheapest and best drying oils.

At present, he is preparing liquid and solid antiseptics by means of ozone, and his next step will be to apply his apparatus to the electrification, not of oxygen or atmospheric air only, but carbon dioxide, nitrogen, and other gases, alone or in combination with atmospheric air or oxygen.

A DESTRUCTIVE FIRE.—Last Monday three large business establishments at Llanberis were totally destroyed by fire. One of the shops was stocked with oil and a quantity of gunpowder, and a terrific explosion resulted, attended by the collapse of several walls. Fortunately no persons were injured, but several narrow escapes are reported. The loss is estimated at £8,000.

THE MERSEY AND IRWELL JOINT COMMITTEE.

ON Monday, October 2nd, the usual monthly meeting of this Committee was held at Mosley-street, Manchester, Ald. J. Thompson presiding.

The CHAIRMAN read a letter from Sir J. T. Hibbert expressing his regret at being unable to attend the meeting, nor would he be able to attend the next if held on the ordinary date; so that subsequently it was decided to hold the next meeting of the Committee a week earlier than usual—namely, on Oct. 30th. Sir J. T. Hibbert said in his letter he thought some notice should be taken of Mr. Fowler's reply to Mr. Knowles in the House of Commons in regard to the condition of the river Irwell in the borough of Salford. The Chairman went on to state that in conjunction with the Ship Canal Board, he had recently inspected the locks and docks of the Ship Canal as far as Barton, and was favourably impressed with the state of affairs. There was no offensive smell from the water.

Mr. T. W. Killick, on behalf of the Consulting Sub-Committee, wished to correct the assumption that the Committee gave extensions of time to authorities for the carrying out of works from pure wantonness of spirit, and that they would have no *quid pro quo*. It was a mistaken idea. Their object was to get the works completed as soon as possible, and in many cases this was best accomplished with the assent of the authorities concerned rather than by issuing summonses against them. The extension of time was allowed authorities to prepare plans, apply to the Local Government Board, borrow money, and carry out works. All this time the Committee had their hands on the authorities. If they went to court long delays might occur, as the case had been with Bury. The work of the Committee generally had been very much greater than anyone outside could realise. Preparations had been made to enforce the law both against authorities and individuals to a much greater extent than the critics were aware of. They had had nearly 100 manufacturers before them for pollution, and they had found them on the whole very willing to take the steps for purifying their effluents which the Committee deemed necessary.

The report of the Chief Inspector (R. A. Tatton, M.I.C.E.) was then presented. It was chiefly composed of correspondence explaining the position of the various authorities whose extensions of time had expired. In the conclusion of his report, however, he made the following remarks:—

On the subject of the proposed deputation to the Local Government Board, I would call the attention of the Joint Committee to the following points:—

It would be difficult to show any system of sewage treatment equal to that required by the Local Government Board,—viz., precipitation in tanks, and subsequent land filtration on an area of suitable land—and the Local Government Board have, therefore, good reason for insisting on this system if land can be obtained. There are, however, cases where suitable land cannot be obtained, or only at great cost, and then the Local Government Board might well modify their hard and fast rule. In these cases I think the Board should be willing to pass a less expensive scheme if, after local inquiry, it is satisfied that there is a reasonable prospect of the scheme being an efficient one, at the same time throwing all responsibility on the Local Authority if the scheme should subsequently prove inefficient. As to how far this question affects the Authorities in your district, I would point out that, with the exception of two or three cases, all the Authorities have conformed to the Local Government Board's requirements, and that a deputation, even if successful, would not materially forward the object we have in view."

The report of the

CONSULTING SUB-COMMITTEE

was then taken, and the recommendations set forth in the report as amended below were adopted.

Mossley Corporation.—The sewage scheme of this authority received the sanction of the Local Government Board in July last, and the Sub-Committee recommend that they be given an extension of time for three months, in which to commence the construction of their sewage works.

Mottram-in-Longdendale Local Board.—The plans of the sewage works for this district will be deposited this week with the Local Government Board. The pollution is only slight, and the Sub-Committee recommend that an extension of time for three months be given them.

Hollingworth Local Board.—This authority has not yet sent up the plans of its proposed works to the Local Government Board. The Sub-Committee recommend that an extension of time for one month be given them in which to do so.

Middleton Corporation.—The sewage scheme of this authority is now under consideration by the Local Government Board. The Sub-Committee therefore recommend that an extension of time for one month be now given them.

Ashton-under-Lyne Corporation, Stalybridge Corporation, Dukin-

field Local Board, Hurst Local Board.—As no satisfactory reply has been received from any of these authorities to the resolution passed at the last general meeting of the Joint Committee, the Sub-Committee recommend that, in accordance with the same, the Clerk be instructed to issue a summons against each authority.

Audenshaw Local Board.—This authority has now a separate sewage scheme before the Local Government Board for the treatment of the sewage of that portion of the district which drains into the river Tame, but this has not been sanctioned, pending the negotiations of Audenshaw and of the other four authorities mentioned above for a joint scheme. The Sub-Committee therefore recommend that an extension of time for one month be given the authority for this portion of their district.

With regard to that part of the district which drains into the Gore Brook, and in respect of which a summons has been issued by the Joint Committee against the Local Board, the adjourned hearing of the case stands fixed for the 11th October, and as the Corporation of Manchester have not, in accordance with the recommendation of the magistrates who heard the case on the 19th July last, yet agreed with the Local Board for a joint scheme, the Sub-Committee recommend that the case against Audenshaw be allowed to proceed, and that the Clerk be instructed to forthwith issue a summons against the Manchester Corporation, in accordance with a former resolution of the Joint Committee, in order to determine the exact liability of each authority. After some discussion and explanation of later details by the chairman of the Sub-Committee, it was decided to adjourn the hearing of the action in both cases for one month.

Droylesden Local Board.—As this authority is, under their new scheme, going to divert their sewage from the Gore Brook, the Sub-Committee recommend that at present no proceedings be taken against this authority.

Whitefield Local Board.—The adjourned hearing of this case is fixed for the 5th October, but pending the decision of the Local Government Board upon the scheme to be prepared by them, in accordance with the letter which was read at the last meeting of the Joint Committee, the Sub-Committee recommend that the hearing of the case be again adjourned for one month.

Radcliffe Local Board.—This authority has made very unsatisfactory progress with its proposed sewage works, and as there is no reason why it should not commence to carry the same out, the Sub-Committee recommend that proceedings be now taken.

Whitworth Local Board.—The Sub-Committee are not satisfied with the progress that this authority has made. They therefore recommend that proceedings be forthwith taken against them.

Little Lever Local Board.—This authority appears to have made no progress with its proposed sewage works. The Sub-Committee therefore recommend that proceedings be forthwith taken against it.

Gorton Local Board.—At the last general meeting of the Joint Committee, this authority was given a further extension of time for one month, and the Sub-Committee have instructed Mr. Tatton to enquire into the steps which have been taken since then, and to report upon the same to to-day's meeting of the Joint Committee. If the report is not satisfactory, the Sub-Committee recommend that proceedings be taken.

Denton and Haughton Local Board.—This authority has not yet sent up its plans to the Local Government Board as promised. The Sub-Committee therefore recommend that proceedings be also taken in this case.

Macclesfield Corporation.—The provisional order obtained by this authority to enable it to acquire the land for its sewage works has now been confirmed by Parliament. The Sub-Committee therefore recommend that a further extension of time for one month be now given it, during which period the application for borrowing and land purchasing powers must be lodged with the Local Government Board.

Bury Corporation.—The twelve months during which period this authority was ordered by the magistrates, on conviction, to divert its sewage from the Rivers Roach and Irwell and tributaries thereof, expires on the 13th October. The Corporation having failed to obey the order of court, the Sub-Committee recommend that the clerk be instructed to prosecute further proceedings to compel them to do so, with all the rigour of the law, and that he be specially authorised to incur all necessary expenses to attain that object. Mr. Hulton (clerk), stated that the penalty was £50. a day.

A letter had been received from the clerk to the Altrincham Rural Sanitary Authority enclosing copy of a report of Dr. Fox. The Sub-Committee recommend that the receipt thereof be acknowledged, and that the attention of the authority be drawn to the report of the Joint Committee's proceedings, and to the action which has been taken by them against Macclesfield and the manufacturing offenders.

AN INSPECTOR FOR WORKS IN OPERATION.

The Sub-Committee recommend that an additional Sub-Inspector be appointed to examine and report upon sewage works, at a salary, to commence with, of £125. per annum, and as Mr. Tatton informs them

that he has applications from several suitable men, they consider that it will not be necessary to advertise, and they recommend that the selection of a suitable candidate be left in their hands. The Sub-Committee have had under their consideration the work which has been carried out by the Chief Inspector since his appointment, and they strongly recommend that in consequence of the very satisfactory and able manner in which Mr. Tatton has fulfilled his duties, as shown by the results, and the increase of work which has arisen since the committee was constituted, that his salary should be increased to the sum of £700. per annum.

In connection with the last clause of the report, the Chairman said in their Chief Inspector they had not only an efficient inspector, but also an educated gentleman. It was desirable, having to deal in an unpleasant way at times with manufacturers and others, that they should have a gentleman to negotiate such matters. The recommendation was unanimously and cordially supported and carried.

Messrs. R. Pendlebury and Sons and R. Ashworth and Sons both gave undertakings to the Committee to have purification works in operation—in the former case within three months, and in the latter case two months. It was decided to take proceedings against Messrs. W. Clegg and J. Hill, of Rochdale.

REPORT OF THE CHEMICAL SUB-COMMITTEE.

The Chemical Sub-Committee reported on the two under-mentioned firms, the consideration of whose cases has already been adjourned by the Joint Committee.

Messrs. T. Heap and Son, Haulgh, Milnrow.—This firm have at present only got tanks in efficient operation at one of their works. The Sub-Committee therefore recommend that a further extension of time for one month be granted to them to have both works under efficient treatment.

Messrs. J. F. Hill and Company, Bowker Bank, Crumpsall.—Mr. Tatton has reported that this firm are constructing tanks, and the Sub-Committee therefore recommend that two months be granted to them to complete the works.

The Sub-Committee have considered the position of the under-mentioned *paper manufacturers*, and they are not satisfied with the action they have taken. They therefore recommend that a notice be now served upon them inviting them to appear before the Joint Committee, if they so desire, to show cause why proceedings should not be taken against them in accordance with part 3 (section 6, sub-section 2) of "The Mersey and Irwell Joint Committee Act, 1892":—Chadwick and Taylor, Ordsall-lane, Salford; J. W. Marshall and Co., Springfield Works, Bolton; C. Turner and Co., Bolton; T. Wilkinson, Lomax Bank, Little Lever; the Ramsbottom Paper Mill Co., Ramsbottom; the Bury Paper Making Co., Gigg, Bury; Duxbury, Yates and Co., Heap Bridge, Bury; East Lancashire Paper Mill Co., Radcliffe; John Wild and Sons, Radcliffe; W. Broadbent and Sons, Little Lever, Bolton; John Hargreaves, Paper Mills, Collyhurst; Lancaster, Ferguson and Co., Harden Mill, Denton; the Grove Mill Paper Co., New Mills. The recommendations were adopted.

DEPUTATION TO THE LOCAL GOVERNMENT BOARD.

Mr. Alderman Walsley then moved that a deputation of members of the committee be appointed to wait on the President of the Local Government Board, to urge upon him the desirableness of a modification of the Local Government Board regulation which insists on land filtration as the only method of dealing with sewage effluents which the Board will sanction. They knew the Local Government Board, he said, was an unpopular body. It was unpopular in the country and in the House of Commons. It was unpopular with governments, perhaps because it was a large money-spending body. The Board had applied for increased grants, he was told, and had always been refused by the Chancellor of the Exchequer. There was no question that the Board was undermanned. The 50 or 60 officials had to deal with some 28,000 local authorities. It was impossible, under such circumstances, that they could do the work expected of them. His idea was that there was too much centralisation in London. He thought that for dealing with such matters as sewage effluents there should be some local authority, say for a watershed or county. These matters, he admitted, were rather apart from the resolution, but if the system were altered the result would be more satisfactory. What he at present desired was that the Local Government Board would relax their decision concerning the land treatment of sewage matter. For many large towns it was almost impossible to get the land required, and the expense was enormous.

In the case of Salford it would necessitate the Corporation acquiring some 200 acres of land, and in Manchester about 600 acres.

Mr. Fowler had said that before the land treatment was given up, a system of treatment equally good must be found. That was going rather far. It was not necessary that such a standard of purity should be insisted upon. There were processes by which they could deal effectively with 75 and 85 per cent. of pollution, and he placed before the committee samples of effluents treated by the Lockwood process

which had remained good, though kept for a considerable time, both corked and uncorked.

They need not subject authorities to this enormous expense, for the water turned into the river was not meant as drinking water. A near approach to purity would meet the case. The pollution, it must be remembered, was not the fault of the people of to-day, but the fault of past generations. This should be remembered before authorities were put to such enormous expense.

The resolution was seconded by Mr. Greenwood (Bacup).

Dr. Hewitt said that the Local Government did not insist on land filtration only. They required that the sewage should pass through some land after being dealt with by a process of precipitation. He was opposed to the resolution because it would place the Committee in opposition to the Local Government Board—a board which was guided by the best scientific advice. But he would quite agree with a proposition urging the Local Government Board to give facilities to sewage schemes which, after a system of precipitation, involved the purchase of the least possible extent of land.

After some discussion, in which Messrs. Hopkinson, Groves, Noton and Haslam took part. Mr. Alderman Walsley withdrew his resolution. The committee then rose.

Trade Notes.

THE MANCHESTER SHIP CANAL.—Notice was given to the Manchester City Council on Wednesday last, by Sir John Harwood, that the Ship Canal would, it was confidently expected, be opened for traffic on New Year's Day, January 1st, 1894.

PERSONAL.—On Monday, at a special meeting of the Eccles Town Council, Alderman Samuel Mellor, Bromyhurst, Barton, managing director of the Magnesium Metal Company, was invited to accept the office of mayor of the borough for the ensuing year. Mr. Mellor has been for many years president of the Patricroft Liberal Club.

THE SOUP WENT WRONG.—Three medical men were called to attend 21 persons in Wigan on Saturday last, who were suffering from vomiting and diarrhoea. They had been partaking of soup which had been supplied by an innkeeper to relieve the distress. It is thought that owing to the use of a new galvanised boiler a deleterious element got into the soup. Had prompt attention not been at hand fatal results would have occurred. A sample of the soup was taken for analysis.

THE LIVERPOOL OVERHEAD RAILWAY.—The success of the Liverpool Overhead Electric Railway is now undoubtedly established, its popularity is universal, and the appreciation it has met has caused the directors to take up the extension of the line to Crosby-road. On the 30th June last it was found that, after paying all the interest on debenture and preference shares, the railway was making a clear profit at the rate of about £10,000. a year, and this, for a new line six miles in length, is extremely creditable and promising.

PROSECUTIONS UNDER THE FACTORY ACT.—During August last there were 163 prosecutions under the Factory and Workshop Acts, out of which there were 153 convictions. Of these 30 were for employing children under 14 or 16 years of age without a school or surgical certificate. The costs and penalties inflicted amounted to £46. 6s. 6d. The total amount of the costs and penalties during the month was £259. 7s. 11d., as against £283. 1s. 4d. in July. There were in all 62 convictions for employing persons at illegal hours or periods, with an average penalty and costs of £1. 17s. 10d.

SULPHUR CANDLES.—According to a contemporary the Sanitas Company, Limited, have branched off into a different line of disinfection from that which they have hitherto pursued by placing upon the market the sulphur fumigating-candles. A peculiar feature about the candle is the ease with which they take fire on applying a light to the cone on the surface, and then burn steadily until the very end. They constitute a convenient and, as far as we can judge, effective means of household disinfection.

POLLUTION OF THE MERSEY.—At the Widnes Police Court last week, the further hearing of the summonses issued by the Mersey Conservators against the United Alkali Company, Limited, for discharging alkali waste into the Marsh brook, which flows into the estuary of the Mersey, was continued. Dr. Ferdinand Hurter, vice-president of the Society of Chemical Industry, and head chemist to the United Alkali Company, gave evidence of the particulars of analyses of water taken at various points up the Mersey, in which were found a certain percentage of lime. The defendants were fined £10. in each of the three cases for discharging alkali waste into Marsh brook, but the magistrates were of opinion that it did not tend to injure or obstruct the navigation of the river, and dismissed the two summonses issued on that allegation.

STEEL PETROLEUM BARRELS.—Steel barrels are now being manufactured at Barrow for the carriage of petroleum. The barrels are made in halves by means of dyes and compression while the thin plates of steel are hot. These halves are welded together by means of electricity, and the barrels, when produced, are considered safer than the wooden casks, and will be used in the petroleum trade in hot climates.

SOAP POWDER.—A dry soap or washing powder in which cottonseed oil may be used if desirable, has the following patented composition:—Tallow 32 parts, resin 10, caustic soda 4, water 24, mineral oil 5, and soda ash 25. The proportions of tallow and resin may be varied or replaced by cottonseed oil; caustic potash or ammonia can be substituted for the caustic soda, and likewise silicated alkalis for the soda ash.

FILTER PRESS CLOTHS.—A pure woollen filter cloth has lately been introduced by C. Harzer, of Billiter Buildings, Billiter-street, London, the chief characteristic of which is that it does not shrink. This is a very important point for works where woollen cloths are used, as they not infrequently get useless on account of their shrinking before they are worn out. This new cloth is already extensively used in chemical works on the Continent and also in some important works in this country. In price it compares favourably with ordinary woollen cloths.

THRIFT IN THE GERMAN CHEMICAL INDUSTRY.—The chemical works in Lesum, district Blumenthal, established in 1889 a savings-bank system for their employees, under which each workman pays in at least one shilling weekly, which is deducted from his wages, and to which the factory adds a shilling. The money can only be drawn for the purpose of building or altering dwelling houses, reducing mortgages on the same, for the outfit of children, or in case of severe illness or death. The factory employs seventeen persons, who have saved in 2¼ years, £425., including £160. from the factory. For building and improvement of dwellings £217. have been withdrawn. The staff, though small, is said to be carefully selected.

ALKALI EXPORTS TO GERMANY.—During the month of August, Germany imported 15,908 cwt. of alkali from the United Kingdom, as compared with 9,984 cwt. in August, 1892. In consequence of the increased duty on German articles, the import into Russia of coal-tar products from England has also been largely augmented. During the first eight months of this year, for instance, Russia imported 212,239 cwt. of alkali from the United Kingdom, as compared with 135,828 cwt. in the corresponding period of last year. The discrepancy would probably have been much greater still but for the fact that the new Russian tariff only came into operation in the second half of the year. During the first eight months of this year the United States imported 2,585,637 cwt. of alkali from the United Kingdom, as compared with 2,218,864 cwt. in the corresponding period of 1892.

MANCHESTER MUNICIPAL TECHNICAL SCHOOL.—This school, which is known to be well equipped, has recently issued its prospectus for the 1893-4 session. Lectures in inorganic and organic chemistry, and a course of practical training in both subjects, are under the care of Dr. Knecht and Mr. Grant, F.I.C. There are also classes in connection with metallurgy. Among the classes arranged to instruct in the technicalities of applied chemistry, there are courses of lectures on iron and steel manufacture, brewing, oils, colours, and varnishes, lubricating and illuminating oils, soap making, the manufacture of alkali and sulphuric acid, paper making, calico printing, photography, and the coal tar products. Special mention should be made of the department for instruction in bleaching, dyeing, and printing of cotton, linen, silk, and wool, under Dr. Knecht, and the assistance of Mr. J. Hübner in practical work in the dyehouse.

THE AGRICULTURAL COMMISSION.—The following are the names of the gentlemen who have been appointed assistant commissioners to this Commission and the districts they will take:—Dr. Fream, the Maidstone district of Kent, and the Andover district of Hants; Mr. Wilson Fox, the Garstang district of Lancashire and the Glendale district of Northumberland; Mr. Hunter Pringle, the Ongar district of Essex and the Isle of Axholme, Lincolnshire; Mr. Croxden Powell, the Stratford-on-Avon district of Warwickshire and the Frome district of Somerset; and Mr. James Hope, who will investigate selected districts of Scotland. Dr. Fream is the editor of the Journal of the Royal Agricultural Society of England, and a Professor at the Downton College of Agriculture; Mr. Wilson Fox was an Assistant Commissioner on Agriculture to the Labour Commission; Mr. Hunter Pringle was also an Assistant Commissioner to the Labour Commission, and for 20 years has been engaged in farming in Scotland and in Norfolk; Mr. Croxden Powell has been engaged in the cheese and seed trade, and is a member of the Royal Agricultural Society; and Mr. James Hope is a well-known agriculturist in Scotland, and was Assistant Commissioner under the Duke of Richmond's Commission in 1880-2. It seems that there is a good deal of dissatisfaction owing to the Commission being so largely composed of men who either hold a landlord's brief, or who have been reared in the sunshine of a landed aristocracy.

Market Reports.

REPORT ON MANURE MATERIAL.

Business continues to be on a moderate scale, and prices, with exception of those for mineral phosphates, still rather favour buyers.

For 1894 shipment, sellers' option, the nearest value for Florida phosphate rock is probably 8½d. per unit, in cargoes, good United Kingdom or Continental ports, but for early shipment money would have to be paid. The nominal value of Peace and Carolina River rock is about 7¼d. per unit for anything like shipment, but further ahead less money would no doubt be asked. Owing to the advance in American mineral phosphates, quoted Continental descriptions are firmer.

The tone of the market for River Plate bones is still quiet, closing value can hardly be quoted over £4. 12s. 6d. to £4. 15s. ex-quay Liverpool would have to be paid.

Nitrate of soda continues quiet, and Continental market is easier. On spot the value of ordinary is about 9s. 1½d. per cwt., good, 9s. 3d. per cwt.; and refined, 9s. 4½d. Due early ordinary quality are worth about 8s. 11d. per cwt., and September shipment 9s. 2¼d. to 9s. 3¼d., according to size and quality.

There is nothing special to report in miscellaneous manure materials.

MISCELLANEOUS CHEMICAL MARKET.

In all branches of the chemical trade manufacturing operations greatly interfered with by the scarcity of fuel. In the alkali trade the greater part of the plant in Lancashire is now at a standstill. Supplies of caustic soda are practically exhausted, but for limited quantities which are still obtainable, the prices ruling are as follows:—Tyne, 77%, £12. 10s.; f.o.b. Liverpool, 74%, £12. 5s.; 70%, £12. 60%, £10. 5s.; cream, 60%, £10. 10-ton lots and upwards. Soda ash of soda ash are largely reduced, and prices are firmer. At alkali, 58%, now quoted £3. 17s. 6d., bags, and £4. 2s. 6d. to per ton in casks, f.o.b. Liverpool. Soda crystals £2. 15s. makers' works. Bleaching powder is still obtainable to meet requirements, but the continued curtailment in salt supply makes scarcity probable. Prices quoted are meantime without change. £8. 10s. nett, f.o.r. makers' works. Chlorate of potash 8½d. per lb. Soda 8½d. Sulphate of copper is rather a firmer market, with demand at £16. per ton, f.o.b. In brown acetate of lime still lighter, and price further advanced. Grey acetate of lime still £11. 5s. White sugar of lead, acetate of soda, and other acids participate in a general tendency towards higher prices. Powdered arsenic still in short supply, and with fair demand, £13. 10s., f.o.r. Garston, etc. Borax continues to offer at £13. Carboic acid crystals without alteration at 6¼d. per lb., in quantities. Liquid carboic acids rather lower. Sulphur £4. to £4. 2s. best recovered. Sulphocyanides are in better request. General market is much disturbed through the stoppage of fuel supplies.

TAR AND AMMONIA PRODUCTS.

The benzol market is extremely dull, and the price of 1s. 5d. rules nominally for both 90's and 50's. The outlook, moreover, is very hopeful, as it is estimated there will be a surplus during the coming season of about 6% of production over consumption, and this without a more close agreement between the producers, must inevitably tend to lower prices. Pitch is now 27s. f.o.b. London, and 28s. Garston. Solvent naphtha is a trifle firmer, but we hear of sales falling from 1s. to 1s. 5d.; crude naphtha is quoted at 8d., but tendency is lower. Crosote has maintained its price, mainly on account of the coal strike, but the large quantities of blast furnace oil in the market have kept prices from moving upwards too rapidly. Crude cat acid is ranging from 1s. 4d. for 60's to 1s. 8d. for 75's. Anthracene 30% A, 1s. 1d., and 30% B, 9½d.

The sulphate of ammonia market looks a little more composed, so it ought to be after the sudden tumble, which seemed quite unexpected. The feeling amongst the more substantial manufacturers is, however, steady, and if consumers abroad still nurse the fond hope of an eventually lower level they may reckon without their host. Prices are down to £13. at the ports, but there is a pause, and it is improbable that this may mean a sudden rally. It is a well-known fact that consumers are bare of stocks, and the question is how long can keep off the market. Beckton is £13. 5s. prompt; on London makes, £13. 2s. 6d.; Hull and Leith, £13.; these are dealers' nominal prices, but there are few sellers who will accept it.

THE METAL MARKET.

LONDON, WEDNESDAY.—Pig iron inactive. Scotch warrants closed at 42s. 5d. cash, Middlesbrough 35s. cash, and hematite 44s. 5d. Copper steady: Chili bars, G.O.B.'s and G.M.B.'s closed at £41. 17s. 6d. to £42. 3s. 9d. cash, and £42 3s. 9d. to £42. 11s. 3d. three months. Tin quiet: Straits closed at £78. 17s. 6d. to £79. 7s. 6d. cash, and £79. 5s. to £79. 15s. three months; Australian, £80. 17s. 6d.; English ingots, £85. Lead quiet: Spanish, £9. 12s. 6d.; English, £9. 15s. to £9. 17s. 6d. Silesian spelter: Ordinary, £17. to £17. 2s. 6d. Nickel, 1s. 8d. Antimony, £38. 10s. Quicksilver: First hands, £6. 10s.; second hands, £6. 9s. Copper shares steady: Cape, 1½ to 1¼. Copiapo, 1½ to 1¼. Libiola, 2¼ to 3. Mason and Barry, 1½ to 1¼. Rio Tinto, 13½ to 13¾. Tharsis, 4½ to 4¾.

LIVERPOOL OIL AND COLOUR MARKET.

WEDNESDAY.

OILS.—Palm oil continues firm, selling freely at full prices. Olive is moderate demand, prices ranging from £32. 10s. to £41. per tun. The tendency to quietness in Linseed has resulted, after some resistance, in a slight reduction, and to-day Liverpool makes in export casks are quoted 22s. to 22s. 6d. per cwt. The firmness of Cottonseed was maintained all the week, but to-day, as anticipated, the market has become quiet, and prices have begun to drop, 23s. to 23s. 9d. per cwt. for Liverpool refined now being quoted. The increased firmness of Castor oil continues, and good seconds Calcutta is steady at 2½d. to 2¾d.; first pressure French is selling at 2½d. ex quay, and 2¾d. per lb. store. Tallow is very scarce and business consequently restricted. Resin is firmer and the demand rather brisker; common is steady at 3s. 9d. per cwt. Spirits of turpentine are still variable, being to-day rather firmer, with a fairly good demand at 22s. per cwt. Petroleum is steadily quiet, with American at 4½d. to 5¼d., and Russian refined 4d. per gallon. COLOURS are steady without alteration in prices.

TYNE CHEMICAL REPORT.

TUESDAY.

Chemicals are quiet with not much enquiry, prices generally unaltered. The following are the present quotations. Soda crystals being now quoted at £2. 12s. 6d. per ton gross weight.

Bleaching powder, softs, £8. 15s. per ton, nett; hards, £9. per ton; caustic soda, 76/77%, £12. per ton, 70%, £10. 10s. per ton; recovered sulphur, 2 cwt. bags, £4. 2s. 6d. per ton; soda ash, 48%, £4. per ton, 52%, £4. 7s. 6d. per ton, 56%, £4. 15s. per ton; alkali, 36%, £3. 15s. per ton; white alkali, 48%, £4. 15s. per ton, 50%, £5. per ton, 52%, £5. 5s. per ton; hyposulphite of soda, in 5-7 cwt. casks, £7. per ton, ditto, in 1 cwt. kegs, £7. 15s. per ton; silicate of soda, 75° Tw., £2. 15s. per ton, 100° Tw., £3. 10s. per ton, 140° Tw., £3. 17s. 6d. per ton; soda crystals, in casks, £2. 12s. 6d. per ton gross weight, in 2 cwt. bags, £2. 12s. 6d. per ton nett weight; chlorate of potash, 8½d. per lb. less 6%; pearl hardening, £3. per ton nett; pure white sulphate of alumina, £4. 2s. 6d. per ton; blanc fixe, £7. 10s. per ton; chloride of barium, £7. 10s. per ton; carbonate of alumina, £28. 15s. per ton nett; aluminate of soda, £33. 15s. per ton nett; in 5 ton lots, £28. 10s.; hydrate of barium, £10. per ton nett.

South Durham salt continues steady at 9s. 6d. per ton f.o.b. Tees.

Coals: There is still a strong enquiry for all qualities, for best Northumbrian the current quotation to-day is 14s. per ton f.o.b.; second qualities, 1s. to 1s. 6d. per ton lower. There is a good demand for small steam coal at 5s. to 5s. 6d. per ton, and large quantities are being sent south for manufacturing purposes. Gas coals very firm at 10s. per ton. Bunker coal quiet, with a large supply. Coke steady, sales are reported at 16s. per ton.

WEST OF SCOTLAND CHEMICALS.

GLASGOW, TUESDAY.

Sulphate of ammonia has continued weakening steadily under a very languid demand, and the price to-day for prompt is not understated at £13. 15s. Possibly there are sellers willing to do business at a lower figure. Some forward transactions (up to March) have been recorded at £13. 5s., but these are small in the aggregate, and weakness is the characteristic of the market throughout, at present.

Mineral oils and paraffins are for the most part still in good demand, with large deliveries of burning oil going on ex-contracts. So well are most makers sold forward that middlemen, it is said, are getting a fraction over the works' price (as given below), but as regards small lots only. Heavy oil for gas-making (865°) is still in request, but makers have discovered that the least tendency to an advance in price at once

checks the call, and shows that but for its cheapness it would not be taken for gas purposes at all.

In general chemicals there is no change; no great demand anywhere, but prices maintained owing to the prolongation of the coal struggle.

Chief prices current are:—Soda crystals £2. 15s. nett, Tyne; soda ash £3. 17s. 6d. nett, Tyne; white alkali 48/52° £4. 15s. to £5. 5s. nett, Tyne; alum in lump £5. nett, Glasgow; caustic soda, white, 76°, £12. 5s., 70/72° £10. 15s., 60/62° £9. 10s., and cream 60/62° £8 15s., all nett, Liverpool; bleaching powder £8. 5s. to £8. 15s. nett Tyne; saltcake 24s.; borax, English refined, £30., and boracic acid, £37. 10s. nett, Glasgow; bicarbonate of soda, 5-cwt. casks, £6. 15s., and 1 cwt. casks £7. less 2½%, Liverpool; bichromate of potash, 4½d. nett, for Scotch and English deliveries (for export, 4¼d. nett f.o.b. Glasgow); bichromate of soda, 3¼d. nett, for Scotch and English deliveries (for export, 3½d. nett, f.o.b. Glasgow); chlorate of potash 9d. less 5%, Liverpool; nitrate of soda, 9s. 3d.; sulphate of ammonia, £13. 15s. prompt, f.o.b. Leith; salammuniac, first and second white, £37. and £35. less 2½% any port; sulphate of copper, £15. less 5% Liverpool; paraffin scale, hard and soft, 1½d. per lb; paraffin wax 120° semi-refined 2½d.; paraffin spirit (naphtha) 4½d. a gallon; paraffin oil, burning, standard No. 1 grade, 5d. per gallon at works, for Scotch buyers (English sales ½d. to ¾d. lower); ditto (lubricating) 865° £4. 5s., 885° £4. to £5. 10s., and 890/895° £4. 12s. 6d. to £6. Week's imports of raw sugar at Greenock were 15,769 bags.

HULL PAINT, OIL, AND COLOUR REPORT.

TUESDAY.

The situation here continues to be acute owing to the scarcity of fuel, still all agree that the beginning of the end has set in. This state of things not only acts adversely upon the outward tonnage of the port, but upon the inward tonnage also, which this week shows a falling off of 7,000 tons compared with a year ago. Yet it is some satisfaction in considering these matters to find that the imports of grain and seed show a fair improvement. The exports of linseed oil shew an increase, being 1,438 cwt. against 913 a year ago. The exports of cottonseed oil show a decrease, being 2,708 cwt. against 4,716 cwt. a year ago. This decrease may in a measure, no doubt, be accounted for by the high prices at present prevailing. Linseed oil on the spot has fluctuated but little, and closes firm with buyers at 20s. 6d. per cwt. naked spot. Forward positions, however, are about 5s. per ton dearer. There are buyers at 19s. 6d. October-December, and January-April are worth 19s. 4½d. to 19s. 6d. Casks 17s. 6d., and ordinary barrels 22s. 6d. per ton extra. Cotton oil, refined, is quiet at 21s. 6d. per cwt. naked spot. October offers at 20s. 7½d., for November-April there has been more enquiry, and up to 18s. 3d. has been paid. Crude, on the spot, 19s. 3d. naked. Refined rape oil, 24s. 6d. in casks. Olive oil unchanged. For coast cod oil a sudden demand has sprang up and it is now difficult to buy for prompt delivery, some makers being oversold, £17. 10s. to £19. per ton. Herring oil, £16. 10s. Sod oil, £15. to £17. per ton. Pine oil, £7. per ton. Anti-Friction grease, from £6. Brown wool grease, £8. Engine oil, 1s. 3d. to 1s. 9d. per gallon. Cylinder oil, from 1s. to 2s. per gallon.

CAKES.—Linseed cakes, in sympathy with linseed, are dearer: 95% pure, £8. 15s. to £9.; ordinary, £7. 5s. to £7. 12s. 6d.; Americans, £7. 12s. 6d.; Russians, £8. 10s. Cotton cakes.—The Langham, with 3,000 tons of cottonseed, having had to put into Lisbon through damaged machinery, the market is excited and tends dearer; best makes, £6. to £6. 2s. 6d. spot; November-April, £5. Rape cakes: East India, £4. 17s. 6d.; Black Sea, £4. 10s. Feeding cakes, £5. 15s.

PAINTS.—There is an improving market considering the fall of the year. The exports also showing an improvement, but chemicals show a considerable decrease compared with same week a year ago, the actual figures being, of the former, 1,998 packages against 1,087, and of chemicals, 2,141 packages against 5,051 packages. Oxide of zinc £24. per ton. Oxide of iron, dry, £9. to £18. Lime blue from £16. White and red lead unchanged. Venetian red, dry, £6. to £10. Ready mixed paints in various sized tins, 28s. per cwt. Enamels, from 4s. 9d. per dozen. Oak varnish, from 6s. per gallon. Common black varnish, £5. 10s. per ton in barrels.

New Companies.

Amalgamated Water-Gas Companies, Limited.—CAPITAL £250,000. in shares of £1. each. This company has been formed to take over the amalgamated undertakings of the British Water-Gas Syndicate, Limited, the Yorkshire and Lancashire Water-Gas Co., Limited, and the North British Water-Gas Syndicate, Limited, and to supply water-gas, etc., for illuminating and other purposes. The subscribers to the memorandum of association are:—W. F. Harrold, 43s.

Essex-street, London, W.C., law stationer; H. Edington, 31, Farnival-street, London, E.C., clerk; G. Gammon, 28, Grosvenor Park, London, S.E., clerk; W. J. Hawke, Marylebone, London, N.W., solicitor's clerk; J. W. Baker, Upper Clapton, London, N.E., solicitor's clerk; F. Gilbert-Batchelor, Harrow-on-the-Hill, solicitor's clerk; J. Wilson, Leyton, Essex, solicitor's clerk.

Cold Dry Air Refrigerating Co., Limited.—CAPITAL £2,000. in shares of £1. each. This company has been formed to acquire certain letters patent for improvements in refrigerating machines, and to carry on the business of manufacturers and dealers in refrigerators.

Harcourt-Harris Syndicate, Limited.—CAPITAL £8,000. in shares of £1. each. This company has been formed to carry on the business of sanitary engineers, manufacturers, etc. The subscribers to the memorandum of association are:—W. Mills, 34, Great St. Helens, London, E.C., stock and share broker; A. F. Martin, 58, Blythe Vale, London, S.E., business agent; J. Caveshill-Shields, 21, Elgin-crescent, London, merchant; A. T. Dimsdale, 3, Holmdale-road, London, surveyor; R. Henderson, 26, Budge-row, London, E.C., merchant; C. Burrell, 112, Vestry-road, Camberwell, London, S.E., broker; E. H. M. Gower, 17, Philpot-lane, London, E.C., engineer.

Redwood and Sons.—An unlimited company for the acquisition of the business hitherto carried on by the firm of Redwood and Sons, chemical manufacturers, was registered on the 18th ult. There are to be not less than two or more than five directors, the qualification being 50 shares. The remuneration of the managing directors (whose names are yet unknown) is to be £400. per annum.

The Patent List.

This list is compiled from Official sources in the Manchester Technical Laboratory, under the immediate supervision of George E. Davis and Alfred R. Davis, who report professionally upon the value of Chemical Patents.

APPLICATIONS FOR ENGLISH LETTERS PATENT.

Improvements in Furnaces. D. Whitehead and A. H. C. Gibson. 17,513. September 18.
Oxy-anthra-quinone. O. Imray. 17,542. September 18.
New Colouring Matter. O. Imray. 17,543. September 18.
Dyeing Wool with Sulphonic Acids of Anthraquinone. O. Imray. 17,544. September 18.

Separating Fats. M. Ekenburg. 17,565. September 18.
Manufacture of Paint and Varnish Driers. J. E. Bedford and C. S. Bedford. 17,581. September 19.
Washable Coloured Papers. G. P. Gardner. 17,593. September 19.
Concentrating Sulphuric Acid. F. J. Falding. 17,629. September 19.
Aluminium Solder. R. I. Roman. 17,632. September 19.
Decolourising Sugar Solutions. C. Steffen. 17,632. September 19.
Ventilating Fans. J. D. Crighton. 17,675. September 20.
Concentrating Sulphuric and other Acids. E. Dyson. 17,699. September 20.
Production of Artificial Musk. A. Baur. 17,703. September 20.
Improved Glue or Cement. E. D. Muelemester. 17,717. September 20.
Air Compressing Apparatus. T. Elwell, junr. 17,731. September 20.
Valves for Tar and Gas Water, etc. F. S. Cripps. 17,737. September 21.
Artificial Rubber. I. S. McDougall and J. T. McDougall. 17,763. Sept. 21.
Fireproof Fabrics. J. H. W. Stringfellow. 17,776. September 21.
Artificial Musk. A. Baur. 17,781. September 21.
Purifying Smoke. E. E. Duier. 17,779. September 21.
Secondary Batteries. F. L. Berners and J. L. Higgs. 17,824. September 21.
Manufacture of Gas. E. Mansfield. 17,811. September 22.
Artificial Ivory and the like. E. A. Jeffreys. 17,844. September 22.
Manufacture of Sulphocyanides. H. W. Crowther and E. C. Rossiter. 17,844. September 22.
Filtering Water. G. L. Stocker. 17,860. September 22.
Apparatus for the Electrolytical Decomposition of Brine, etc. H. Guthrie and M. Guthrie. 17,867. September 22.

Gazette Notices.

PARTNERSHIPS DISSOLVED.

R. W. SINCLAIR and J. GRAY, junr., drysalts, South Shields, under the style of Sinclair and Gray.
A. P. TOWLE and S. TOWLE, chemists and chlorodyne manufacturers, Manchester, under the style of A. P. Towle and Son.
R. W. BREWER and J. J. MARRIOTT, lime and coal masters, Walsall and Wolverhampton, under the style of Brewer and Marriott.
G. WEBSTER and J. HALL, brick manufacturers, under the style of the Plastic Pressed Brick Co., Hurli-ld, Handsworth, Yorkshire.
L. COOPER and J. E. PATER, coal, coke, and salt merchants, Olney, Buckinghamshire, under the style of L. Cooper and Co.

BANKRUPTCY ACTS, 1883 and 1890.

Adjudication.

WAGHORN, GEORGE PAUL (described in the receiving order as George Waghorn) Holloway-road, Holloway, N., and MACEY, ALBERT EDWARD (described in the receiving order as Albert Macey), Parolles-road, Holloway, N., late Holloway-road, N., trading as Waghorn and Macey, Holloway-road, Holloway, N., oil and colour merchants.

Adjudication Annulled.

PASSMORE, JAMES HENRY, Tottenham Court-road, W., chemist.

IMPORTS OF CHEMICAL PRODUCTS

AT

THE PRINCIPAL PORTS OF THE UNITED KINGDOM.

LONDON.

Week ending September 23rd.

Acetic Acid—
Holland, 2 pkgs. Beresford & Co.
Alkali—
France, 220 c. Amati & Harrison
Canada, 70 S. Ward & Co.
Alum—
Holland, 32 pkgs. Ross & Deering
Sydney, 300 t. Aust. Alum Co.
Antimony—
Sydney, 40½ t. H. Bath & Sons
E. Turkey, 100 Dalgety & Co., Ltd.
Sydney, 57 J. Bamber
Vivian, Younger, & Co.
Asbestos—
Holland, 442 J. Parlevliet
Canada, 220 W. Byford
U. States, 200 Bell's Asbestos Co.
Italy, 124 Mory & Co.
" 646 London Asbestos Co.
" 247 British
Belgium, 10 T. Palmer
Barium Chloride—
Germany, 24 pkgs. Petri Brs.
Barytes—
Germany, 22 cks. R. Bew
" 11 W. Harrison & Co.
Belgium, 21 S. H. Willoughby
Holland, 22 W. Pope & Co.
" 44 W. Harrison & Co.
Belgium, 18 J. L. Lyon & Co.

Boracic Acid—
Italy, 20 pkgs. F. Boehm
Caoutchouc—
Japan, 4 c. Schenker & Co.
Greytown, 50 Price, Hickman, & Co.
Germany, 113 Prop. Hay's Wf.
China, 1 M. M. De France
Zanzibar, 1 Prop. Bull Wf.
E. Indies, 169 E. Boustead & Co.
Carthage, 33 Prop. Bull Wf.
Zanzibar, 46 Clarke & Smith
Ceylon, 7 L. & I. D. Jt. Co.
E. Indies, 25
" 7 Prop. Bull Wf.
Spain, 9 B. & N. Wf. Co., Ltd.
U. States, 22 Anderson, Weber, & Smith
Carbolic Acid—
Holland, 30 pkgs. Carey & Sons
Castor Oil—
France, 20 brls. J. T. Morton
Italy, 2 cs. A. F. White & Co.
" 19 Evans, Lescher, & Co.
" 10 Fellows, Morton, & Co., Ltd.
" 20 cks. F. Boehm
France, 30 Beresford & Co.
" 15 brls. Leach & Co.
Italy, 35 cs. Barron, Harveys, & Co.
Chemicals (otherwise undescribed)
Germany, 10 pkgs. A. F. White & Co.
" 64 T. H. Lee
" 66 H. Hoyer

Germany, 96 A. & M. Zimmermann
" 1 Hernu, Peron, & Co.
" 12 Domeier & Co.
Cream of Tartar—
Italy, 20 pkgs. B. Jacob & Sons
" 16 Thames S. T. & L. Co.
" 10 Fellows, Morton, & Co.
France, 33 B. & F. Wf. Co., Ltd.
" 6 E. W. Carling & Co.
" 14 C. F. Gerhardt
Spain, 8 H. R. Boyer
Holland, 32 Middleton & Co.
France, 17 W. C. Bacon & Co.
" 20 Finlay & Co.
" 2 H. Johnson & Sons
" 2 J. L. Lyon & Co.
" 1 L. & N.-W. Ry. Co.
Dextrine—
Germany, 100 pkgs. Hernu, Peron, & Co.
Dyestuffs—
Argols
Italy, 474 pkgs. B. Jacob & Sons
" 154 Thames S. T. & L. Co.
Cochineal
France, 7 pkgs. W. Dutton & Co.
Canaries, 7 Sperling & Williams
" 14 Johnson, Hicks, & Co.
Cutch
E. Indies, 1,000 pkgs. Arracan & Co.
Cape, 65 Anderson, Weber, & Smith
Extracts
Denmark, 25 pkgs. J. Forsey
" 8 Bailey & Leatham

Denmark, 90 Elkan & Co.
Germany, 2 T. H. Lee
France, 40
" 6 Union L. Co., Ltd.
Belgium, 80 T. H. Lee
France, 11 R. J. Fullwood & Bland
Fustic
Colon, 52 t. Lewis & Post
Gambier
E. Indies, 434 pkgs. J. Grog
" 1,553 Adamson, Gillies, & Co.
" 958 Brown & Elmdale
" 328 Beresford & Co.
Indigo
E. Indies, 3 cmts. Eales & Rutbeford
" 7 L. & I. D. Jt. Co.
" 33 P. Macfadyen & Co.
" 16 Parry & Co.
" 9 R. Von Glehn & Sons
" 24 Schutz & Co.
" 13 Stansbury & Co.
" 1 Arbuthnot, Latham, & Co.
Logwood
B. Honduras, 77 t. A. Hagst
Madder
France, 3 pkgs. Skilleck Bn.
Myrabolams
E. Indies, 400 pkgs. Prop. Sun Wf.
" 1,100 L. & I. D. Jt. Co.
Orchella
Ceylon, 19 pkgs. L. & I. D. Jt. Co.
E. Indies, 4 J. P. Alpe & Co.

Saffron		Belgium, 1 pkg. Butler's Wf., Ld.
		Spain, 1 R. Quincey & Son
		1 B. & N. Wf. Co., Ltd.
Sumac		Italy, 1,150 pkgs. J. Kitchen, Ltd.
		100 Beresford & Co.
Tanner's Bark		Morocco, 4 t. A. & W. Nesbitt
		Adelaide, 49 Devitt & Hett
Turneric		E. Indies, 5 pkgs. Co-op. L. Association, Ltd.
Farina—		Holland, 50 pkgs. J. Knill & Co.
		" 20 Dutrulle, Solomons, & Co.
Flux Skimmings—		U. States, 45 pkgs. Hughes, Chemery, & Co.
French Chalk—		Italy, £160 W. Harrison & Co.
Glucose—		U. States, 450 pkgs. 2,000 c. L. & I. D. Jt. Co.
		" 500 500 c. P. W. Hore & Co.
		" 250 251 Devitt & Hett
		" 2,000 2,000 Fellows, Morton & Co.
		" 250 250 Trier, Meyer, & Co.
		" 500 500 W. Balchin
		" 150 300 J. Lucey & Sons
		" 75 450 Elkan & Co.
		" 950 950 Barrett, Tagant, & Co.
		Germany, 20 162 Prop. Chmbln's Wf.
		U. States, 2,348 8,958 L. Sutro & Co.
		" 9,423 9,784 R. G. Hall & Co.
		" 912 2,328 T. M. Duche & Sons
		" 1,150 1,003 P. Windmuller & Co.
		" 850 850 J. Barber & Co.
		" 350 450 H. Lorenz
Guano—		N. Zealand, 1 t. Houlder Bros. & Co.
Iron Bromide—		Germany, 4 pkgs. A. & M. Zimmermann
Lead Acetate—		Germany, 14 pkgs. F. Boehm
Magnesium—		Germany, 1 pkge. D. W. Greenhough & Sons
Manganese—		Japan, 185 t. Anderson, Anderson, & Co.
Manure—		France, 60 t. J. Burnett & Sons
		Chili, 1,800 W. Montgomery & Co.
		U. States, 14 S. E. Rly. Co.
Methyl Alcohol—		Germany, 6 drs. Elkan & Co.
		" 11 cks. Stein Brs.
Mica—		E. Indies, £570 W. M. Smith & Sons
Ochre—		France, 68 cks. W. Harrison & Co.
		Belgium, 62 pkgs. A. Holland & Co.
		Holland, 8 Philipps & Graves
		U. States, 23 brls. Eastern Linoleum Co.
Painters' Colours—		France, 1 pkg. Mory & Co.
		" 34 Flageolet & Co.
		U. States, 50 A. C. Davey
		Germany, 20 T. H. Lee
		" 8 cks. L. & I. D. Jt. Co.
		" 4 pkgs. Craven & Co.
		France, 18 Hernu, Peron, & Co.
		Belgium, 15 T. Palmer
		Sweden, 140 Smythe & Co.
		Holland, 5 W. H. Carey & Sons
		Germany, 3 cks. Philipps & Graves
		France, 2 pkgs. Bennett S.S. Co., Ltd.
		" 8 F. Corfield Smith
		Belgium, 8 J. L. Lyon & Co.
		" 163 Union L. Co., Ltd.
Paraffin Wax—		U. States, 2,038 brls. J. H. Usmar & Co.
		" 246 G. H. Frank
		" 150 Fairclough, Dodd, & Co.
Phosphate Rock—		E. Indies, 16 t. G. H. Wilson & Sons
		U. States, 1,500 Anglo Contl. G. Wks.
		Canada, 395 Pickford & Winkfield
		Holland, 210 West & Penrose
		Belgium, 50 Anglo Contl. G. Wks.
Pitch—		Sweden, 100 cks. Watts & Co.
		" 150 M. Record
		Belgium, 2 Davies, Turner, & Co.
Plumbago—		Italy, 350 brls. J. Thredder, Sons, & Co.
		Germany, 37 cks. B. Gallaway
		Ceylon, 343 J. Thredder, Son, & Co.
Potash—		France, 105 c. Petri Brs.
Potassium and Sodium Bi-carbonate—		Holland, 40 pkgs. A. & M. Zimmermann
Potassium Carbonate—		France, 32 c. J. A. Reid
		Germany, 100 Beresford & Co.
Potassium Oxymuriate—		Belgium, 20 pkgs. G. Boor & Co.
Potassium Permanganate—		Germany, 20 pkgs. H. Lorenz
Potassium Sulphate—		France, 50 pkgs. Petri Brs.
Pumice Stone—		Italy, 50 t. O'Hara & Hoar
		France, 10 "
		Italy, 1 7 c. Capt. Hughes
		" 12 W. J. Davies & Sons
		Holland, 1 12 Philipps & Graves
Quicksilver—		Italy, 500 brls. L. & I. D. Jt. Co.
Rosin—		U. States, 3,810 brls. G. Nutter & Co.
		" 2,010 F. & S. Chiesman & Co.
		" 475 Moore & Hole
		France, 14 F. & S. Chiesman & Co.
Saltpetre—		Germany, 100 cks. P. Hecker & Co.
		" 3 Brown & Elmslie
		" 3 W. H. Mitchell
Silica—		Germany, £16 T. H. Lee
Soapstone—		Italy, £105 Davies, Turner, & Co.
Sodium Hyposulphite—		Germany, 115 pkgs. F. Boehm
Starch—		Holland, 239 pkgs. Magee, Taylor, & Co.
		Germany, 40 J. Hall, junr., & Co.
		" 500 P. W. Hore & Co.
		Holland, 841 C. J. Capes & Co.
		Belgium, 140 Leach & Co.
		France, 10 Prop. Chmbln's Wf.
		Holland, 240 A. Starck
		" 40 J. Barber & Co.
		" 25 Philipps & Graves
		Belgium, 251 A. Holland & Co.
		France, 6 Dutrulle, Solomons, & Co.
		U. States, 125 Prop. Scott's Wf.
Stearine—		Belgium, 185 bgs. H. Hill & Sons
		France, 80 Walbaum & Co.
Sulphur—		Carthage, 100 t. A. Hunter & Co.
		Italy, 16 J. Kitchen, Ltd.
		" 3 McDougall & Bonthron
Talc—		E. Indies, £42 Wrightson & Co.
		" 13 Stockwell & Co.
		" 80 W. M. Smith & Sons
Tallow—		P. Arenas, 21 cks. Dyster, Nalder, & Co.
		N. Zealand, 301 Leach & Co.
		" 6 Hoare, Wilson, & Co.
		" 14 Flack, Chandler, & Co.
		" 55 Hicks, Nash, & Co.
		Melbourne, 40 Low, Sons, & Bedford
		Sydney, 41 Flack, Chandler, & Co.
		" 763 J. Allan & Co.
		" 316 Nelson Brs., Ltd.
		" 530 Goad, Rigg, & Co.
		" 281 Beresford & Co.
		Melbourne, 64 Culverwell, Brooks, & Co.
		Sydney, 52 "
		Italy, 40 cs. Vassmer & Co.
		N. Zealand, 39 Dalgety & Co.
		Sydney, 115 Leach & Co.
		" 200 Philipps & Graves
		" 1,173 Aust. Meat Co.
		" 113 Elkan & Co.
		" 150 J. Greig
		France, 6 H. Hill & Sons
		Queensland, 1 Beresford & Co.
		Melbourne, 58 Leach & Co.
		Holland, 3 J. Barber & Co.
		" 3 E. W. Fischel & Co.
Tar—		Germany, 25 brls. Watson & Metcalf
Tartaric Acid—		Austria, 17 pkgs. W. C. Bacon & Co.
Turpentine—		Savannah, 3,188 brls. Ni koll & Knight
		" 1,100 Prod. Brokers Co.
		Charleston, 1,894 brls. "
Uramarine—		Holland, 5 cs. Hernu, Peron, & Co.
		" 7 Haefner, Hilpert, & Co.
		Germany, 6 cks. G. Steinhoff
		Holland, 3 pkgs. J. Barber & Co.
		Belgium, 7 20 brls. Leach & Co.
		" 2 cs. J. L. Lyon & Co.
White Lead—		Germany, 11 cks. P. Jantzen
		Holland, 8 Philipps & Graves
		Germany, 20 Colthurst & Harding
		" 40 Randall Brs.
		" 10 Petri Brs.
		Holland, 57 Burrell & Co.
		France, 10 "
Zinc Oxide—		Germany, 50 brls. M. Ashby, Ld.
		Holland, 25 "
		U. States, 165 6 pkgs. "

LIVERPOOL.

Week ending September 21st.

Acetic Acid—		Rotterdam, 5 chys.
Antimony—		Valparaiso, 353 sks.
		Antofagasta, 743 Kleinwort, Sons, & Co.
		" 288 A. Gibbs, Sons, & Co.
Barytes—		Antwerp, 150 bgs. 10 cks.
Boracic Acid—		Leghorn, 42 cks.
		" 12 Pickford & Co.
Borax—		Valparaiso, 462 bxs. H. W. Gibson
		" 304 "
		Leghorn, 34 cks.
Caoutchouc—		Valparaiso, 20 bls. F. Huth & Co.
Castor Oil—		Parahiba, 372 bgs. Niemezer, Cahu, & Co.
		Leghorn, 10 cs.
Chemicals (otherwise undescribed)		Rouen, 25 cks.
		Valencia, 10 cs.
Colours—		Antwerp, 6 cks.
		Rotterdam, 2 20 cs.
		Ghent, 2 brls. 4 J. T. Fletcher & Co.
Dyestuffs—		Algarobilla
		Paiza, 50 sks.
		Cochineal
		Las Palmas, 6 sks. S. Betreust
		" 6 W. D. Manly & Co.
Divl Divl		Hamburg, 80 bgs.
Extracts		Bordeaux, 50 cks.
		Halifax, 200 Boucher, Bacon & Co.
		Antwerp, 10 1 brl.
		Fiume, 596 De Clermont & Donner
		" 75 Oak Extract Co. Ld.
		Trieste, 376 "
		New York, 20 bgs. 15 kgs.
Fustic		Veracruz, 4,250 ps. Bourne, Graham & Co.
		Colon, 4,150 Duranty & Sons
		" 1,395 Edwards Bros.
		" 3,337 D. Midgley & Sons
		Corfu, 13 t.
Logwood		Belize, 108 t. 6 c. B. Cramer
		" 65 "
Madder		Rotterdam, 1 ck.
Orchella		Lisbon, 84 bls. A. Barbosa & Co.
		" 270 bgs.
Saffron		Valencia, 1 bx.
Shumac		Barcelona, 75 bgs.
		Palermo, 100 J. Kitchen Ld.
		" 300 H. Rooke, Sons & Co.
		" 1,195 "
		Fiume, 205 "
Valonia		Zante, 625 bgs. G. E. Spiropulo
Dyestuffs (otherwise undescribed)		New York, 25 bxs.
Farina—		New York, 1,482 sks.
		Fiume, 50 bgs. C. J. Vander Veen & Bro.
		" 40 bls. F. Leyland & Co., Ld.
Fertilizers—		New York, 5 cs. 3 brls. 21 bgs.
Flux Skimmings—		Rotterdam, 49 pkgs.
Glucose—		New York, 800 brls.
		Baltimore, 100 "
Guano—		Antwerp, 182 bgs.
Iodine—		Valparaiso, 115 brls. W. & J. Lockett
		" 4 A. Gibbs & Sons
Iron Oxide—		Montreal, 4 cks. Reddaway & Co.
Lead Acetate—		Hamburg, 19 cks.
Mineral White—		Trieste, 100 bgs. Schroeder & Co.
		Fiume, 105 "
Naphtha—		New York, 5,367 brls. Meade, King & Co.
Ochre—		Rouen, 23 cks.
		" 11 R. J. Francis & Co.
Oxalic Acid—		Rotterdam, 32 cks.
Paint—		Boston, 50 cs. Bahr, Behrend, & Ross
		Bombay, 16 dms.
		In transit, 54 "
Paraffin Scale—		New York, 559 brls. Standard Oil Co.
Petroleum—		Batoum, 2,905 t. R. Stewart & Co.
Phosphate Rock—		Bona, 800 t.
Pitch—		Archangel, 100 cks.
		Hamburg, 57 "
Potash—		Rouen, 53 cks.
		Dunkirk, 2 43 dms.
		Rotterdam, 19 "
Potassium Chlorate—		New York, 80 kgs.
		Boston, 100 "
		In transit, 1 ck. Cunard S. S. Co., Ld.
Pumice Stone—		Leghorn, 11 bgs.
Pyrites—		Huelva, 1,369 t. Tennants & Co.
		" 4,280 Matheson & Co.
Rosin—		New York, 2,614 brls.
		Baltimore, 1,000 "
		Savannah, 2,325 "
Saltpetre—		Hamburg, 20 cks. 2

Soapstone —		
Genoa,	200 bgs.	
Starch —		
Hamburg,	992 cs.	
New York,	386 sks.	
Antwerp,	135	J. T. Fletcher & Co.
Fiume,	40 bgs.	
Rotterdam,	111	
Stearine —		
Bordeaux,	32 cs.	
New York,	10 bds.	
Antwerp,	5 bgs.	J. T. Fletcher & Co.
"	114	
Sulph Silver —		
Colon,	4 cs.	Sanches & Saffron
Sulphur —		
Messina,	183 cks.	320 bgs. 34 brls.
Girgenti,	250 t.	J. Kitchen Ld.
Tallow —		
B. Ayres,	512 pps.	Haycroft, Pethrick & Co.
"	360	80 bds.
New York,	50	
Montreal,	25 tcs.	H. Cook & Co.
Philadelphia,	61	
Boston,	68	157
Antwerp,	12 cks.	
Tar —		
Archangel,	2,757 brls.	
Tartar —		
Bordeaux,	5 bgs.	3 cks.
Hamburg,		4
Messina,		4
Tartaric Acid —		
Antwerp,	5 cks.	J. T. Fletcher & Co.
Rotterdam,	10	
Ultramarine —		
In transit,	25 cs.	
Rotterdam,	18	11 cks.
White Lead —		
Rotterdam,	9 cks.	
Zinc Oxide —		
Antwerp,	30 brls.	
New York,	50	

HULL.

Week ending September 23rd.

Acetic Acid —		
Rotterdam,	34 bals.	G. Lawson & Sons
Acid —		
Hamburg,	3 cs.	Wilson, Sons, & Co., Ld.
Bari,	24 cks.	"
Alum —		
Rotterdam,	35 cks.	W. & C. L. Ringrose
Aluminium —		
Bremen,	2 cs.	
Arsenic —		
Hamburg,	25 brls.	Wilson, Sons, & Co., Ld.
Asbestos —		
Flushing,	3 bls.	Brasch & Rothenstein
Barytes —		
Antwerp,	24 cks.	
"	60 bgs.	Bailey & Leatham
Bremen,	131 cks.	
Camphor —		
Hamburg,	4 brls.	Wilson, Sons, & Co., Ld.
Cellulose —		
Rotterdam,	25 bls.	G. Lawson & Sons
Chemicals (otherwise undescribed)		
Antwerp,	25 cks.	98 pks. Wilson, Sons, & Co., Ld.
Stettin,	29	2
Bremen,	2	Veltmann & Co.
Rotterdam,	1 cs.	W. & C. L. Ringrose
Dunkirk,	58	Wilson, Sons, & Co., Ld.
Hamburg,	1 ck.	
Chrome Alum —		
Rotterdam,	2 cks.	Hutchinson & Son
Bremen,	1 kg.	J. Pyefinch & Co.

Colours —		
Ghent,	20 brls.	28 cks.
Trieste,	58	
Stettin,	20	Wilson, Sons & Co., Ld.
Flushing,	8 cs.	43 pks. G. Lawson & Sons
Antwerp,	3	
Bremen,	5	6
Rotterdam,	5	Veltmann & Co.
"	16	23
"	16	23
Flushing,	11	32
Rotterdam,	10 brls.	G. Lawson & Sons
Cottonseed Oil —		
New York,	1,500 brls.	Wilson, Sons, & Co., Ld.
Cream of Tartar —		
Rotterdam,	5 cks.	W. & C. L. Ringrose
Cryolite —		
Copenhagen,	1 ck.	Wilson, Sons, & Co., Ld.
Dyestuffs —		
Alizarine		
Flushing,	63 pks.	2 cks. G. Lawson & Sons
"	40	Hutchinson & Son
Rotterdam,	17 brls.	G. Lawson & Sons
Fustic		
Hamburg,	90 pcs.	Wilson, Sons, & Co., Ld.
Logwood		
Hamburg,	50 bgs.	Wilson, Sons, & Co., Ld.
Madder		
Rotterdam,	2 cks.	W. & C. L. Ringrose
Sumac		
Palermo,	300 bgs.	Wilson, Sons, & Co., Ld.
"	950	
Farina —		
Ghent,	208 cs.	Wilson, Sons, & Co., Ld.
Stettin,	400 bgs.	"
Harlingen,	100	"
Glucose —		
New York,	500 brls.	Wilson, Sons, & Co., Ld.
Stettin,	18 cks.	"
"	500 bgs.	Hutchinson & Son
Rotterdam,	50	"
Iron Chloride —		
Hamburg,	1 cs.	Wilson, Sons, & Co., Ld.
Lime —		
New York,	304 bgs.	Wilson, Sons, & Co., Ld.
Manure —		
Ghent,	152 tns.	
Ochre —		
Antwerp,	106 bgs.	Bailey & Leatham
Paint —		
New York,	25 cs.	Wilson, Sons, & Co., Ld.
Trieste,	18 pks.	
Antwerp,	1 hmp.	Hanger, Watson & Harris
Phosphate —		
St. Valery,	140 t.	
Potash —		
Hamburg,	1 ck.	Wilson, Sons, & Co., Ld.
Dunkirk,	36 dms.	"
Pumice Stone —		
Messina,	15 cs.	54 bgs.
Salt —		
Hamburg,	a quantity	Bailey & Leatham
Saltpetre —		
Hamburg,	10 cks.	Bailey & Leatham
"	5	
Rotterdam,	5 cks.	Hutchinson & Son
Soap —		
Bari,	6 cs.	
Sodium Nitrate —		
Hamburg,	200 kgs.	Wilson, Sons, & Co., Ld.
Starch —		
Bremen,	2,650 cs.	Veltmann & Co.

Amsterdam,	20	W. & C. L. Ringrose
Rotterdam,	124	Hutchinson & Son
Antwerp,	54	Bailey & Leatham
Stearine —		
Antwerp,	125 bgs.	Hornby & Needler
Sulphur —		
Catania,	3,300 pks.	Wilson, Sons, & Co., Ld.
"	119	100 tns.
Tallow —		
New York,	600 pkgs.	
St. Petersburg,	25 cks.	
Tar —		
Helsingfors,	10 brls.	J. Good & Sons
Tartaric Acid —		
Rotterdam,	2 cks.	G. Lawson & Sons
"	5	W. & C. L. Ringrose
Turpentine —		
Libau,	51 cks.	
Helsingfors,	1 brl.	J. Good & Sons
Ultramarine —		
Bremen,	1 cs.	Veltmann & Co.
"	4 cks.	
Rotterdam,	1	Hanger, Watson, & Harris
Varnish —		
New York,	2 cks.	7 brls.
Waste Salt —		
Hamburg,	50 bgs.	Wilson, Sons, & Co., Ld.
"	qty.	
White Lead —		
Rotterdam,	33 cks.	Hutchinson & Son
Antwerp,	87	Bailey & Leatham

GLASGOW.

Week ending September 28th.

Alumina Sulphate —		
Rotterdam,	30 cks.	J. Rankine & Son
Aniline —		
Rotterdam,	12 bxs.	J. Rankine & Son
Barium Sulphate —		
Antwerp,	20 bgs.	5 cks.
Barytes —		
Rotterdam,	45 cks.	
"	67 cks.	J. Rankine & Son
Castor Oil —		
Antwerp,	29 cks.	
Colours —		
Hamburg,	1 ck.	
Rotterdam,	1 bg.	20 brls.
"		J. Rankine & Son
Dyestuffs —		
Alizarine		
Rotterdam,	64 cks.	J. Rankine & Son
"	35	
Extracts		
Fiume,	175 brls.	
Antwerp,	5 cks.	
Baltimore,	12 brls.	J. Strang & Son
Sumac		
Fiume,	75 bgs.	W. N. Gemmell & Co.
"	48	
Dyestuffs (otherwise undescribed)		
Rotterdam,	1 ck.	J. Rankine & Son
Farina —		
Antwerp,	20 bgs.	
Hamburg,	70	
French Chalk —		
Fiume,	100 bgs.	
Rotterdam,	4 cks.	
Manganese Chlorate —		
Rotterdam,	8 cks.	
Ochre —		
Rouen,	8 cks.	
Pyrites —		
Huelva,	914 t.	Jas. Livingstone
Rosin —		
Baltimore,	133 brls.	C. Tennant & Co.
Saltpetre —		
Hamburg,	7 brls.	

Soap —		
Philadelphia,	991 bxs.	53 crts.
Fiume,	34	W. Bunten & Co.
"	30	
Hamburg,	1	
Sodium Acetate —		
Rouen,	21 cks.	
Starch —		
New York,	500 bxs.	
Baltimore,	1,000	
Tallow —		
Baltimore,	200 tcs.	J. Osborne & Sons
Tartar —		
Oporto,	6 cks.	
Tartaric Acid —		
Fiume,	17 brls.	
White Lead —		
Rotterdam,	54 cks.	J. Rankine & Son
Ghent,	9	
Rotterdam,	58	
Zinc Oxide —		
New York,	20 brls.	
Antwerp,	35 cks.	
Rotterdam,	25	J. Rankine & Son

TYNE.

Week ending September 23rd.

Alum Earth —		
Hamburg,	18 cks.	Tyne S. S. Co.
Limestone —		
Antwerp,	2 fms.	3 pkgs. Tyne S. S. Co.
Pitch —		
Archangel,	150 brls.	
Pyrites —		
Huelva,	2,028 t.	
Saltpetre —		
Hamburg,	3 cks.	Tyne S. S. Co.
Starch —		
Rotterdam,	100 cs.	Tyne S. S. Co.
Superphosphate —		
Antwerp,	100 bgs.	Tyne S. S. Co.
Tar —		
Archangel,	260 brls.	
Waste Salt —		
Hamburg,	300 t.	Clephans & Wiencke
White Lead —		
Antwerp,	28 brls.	Tyne S. S. Co.

GOOLE.

Week ending September 20th.

Alum —		
Rotterdam,	12 cks.	
Antimony —		
Boulogne,	7 cks.	
Caoutchouc —		
Boulogne,	6 cks.	
Dyestuffs —		
Alizarine		
Rotterdam,	130 pkgs.	
Dyestuffs (otherwise undescribed)		
Boulogne,	15 cks.	60 pkgs.
Glucose —		
Hamburg,	50 cks.	
Iron Oxide —		
Rotterdam,	180 t.	
Potash —		
Antwerp,	18 brls.	
Calais,	44 dms.	10 cks.
Saltpetre —		
Rotterdam,	100 bgs.	
Waste Salt —		
Hamburg,	500 bgs.	
Zinc Oxide —		
Antwerp,	35 brls.	

GRIMSBY.

Week ending September 23rd.

Caoutchouc —		
Hamburg,	5 pkgs.	
Antwerp,	1 cs.	
Chemicals (otherwise undescribed)		
Hamburg,	15 cks.	14 pkgs.
Antwerp,	6	22
Rotterdam,	27	

EXPORTS OF CHEMICAL PRODUCTS

OF

THE PRINCIPAL PORTS OF THE UNITED KINGDOM.

LONDON.

Week ending September 27th.

Acetic Acid—

Wellington, 3 t. 8 c. £75
Halifax, 10 cks. 51

Acids—

Natal, 5 cs. 1 t. 14 c. £22

Alkali—

Brisbane, 1 t. 1 c. £28
Natal, 2 9 52

Alum Cake—

Calcutta, 40 t. 11 c. £142

Ammonia (Liquid)—

Hamburg, 24 drs. £55

Ammonium Carbonate—

Settin, 1 t. 9 c. £40

Ammonium Chloride—

Trebizonde, 2 t. 5 c. £78
Constantinople, 2 10 78
Antwerp, 3 cks. 34

Arsenic—

Cape Town, 10 c. £8
Wellington, 1 t. 15

Boric Acid—

St. Petersburg, 6 cks. £58

Borax—

Rotterdam, 7 c. £12
Auckland, 5 8
Hamburg, 6 cks. 48

Carbolic Acid—

Calcutta, 24 drs. £10
New York, 3 cs. 23
Hamburg, 16 cks. 77

Carbonate of Lime—

Bordeaux, 10 cks. £7

Carbon Bisulphide—

Rotterdam, 24 drs. £110
Adelaide, 10 cs. 14

Caustic Potash—

Auckland, 10 c. £12

Caustic Soda—

Singapore, 3 t. 8 c. £32
Christchurch, 2 19 97
Madeira, 2 17 30

Chemicals (otherwise undescribed)

Mauritius, 4 c. £28
Auckland, 5 cks. 12 cs. 51
Wellington, 4 18
Bombay, 1 t. 5 77
Hamburg, 5 72
Natal, 11 20 25

Citric Acid—

Odessa, 12 kgs. £102
Rotterdam, 2 16
Madeira, 7 c. 48
Brisbane, 3 21
Antwerp, 5 40
Hamburg, 11 90
St. Petersburg, 3 t. 2 10 936
Taganrog, 3 28
Bombay, 6 57
Lyon, 1 5 43
Moscow, 1 10 210

Ipsal Products—

Alizarine, 50 kgs. £100

Aniline

Auckland, 3 cs. £15

Aniline Oil

Rotterdam, 24 drs. £650

Anthracene

Rotterdam, 33 t. 27 cks. £1,434

Benzol

Calais, 19 cks. £133
Hamburg, 11 t. 2 c. 25 drs. 476
Rotterdam, 57 cks. 470

Creosote

Dieppe, 23,500 glns. £123

Naphtha

Melbourne, 10 crts. £15
Auckland, 10 drs. 12

Paraffin Wax

Hobart, 21 pkgs. £82

Pitch

Antwerp, 945 t. £1,201
Helsingfors, 430 519
Boston, 305 cks. 182Rotterdam, 699 874
Duisberg, 127 220
Baltimore, 191 336
Marseilles, 820 1,035
Cette, 2,410 3,013
Dunkirk, 459 600
Sables d'Olonne, 410 600

Tar

Algoa Bay, 200 dms. £7
Hong Kong, 109 brls. 98
Berbice, 10 10
Helsingfors, 950 417

Pitch and Tar

Hong Kong, 19 brls. £13

Tar Oil

Paris, 20 cks. £50

Toluol

Rotterdam, 24 cks. £76

Copper Sulphate—

Wellington, 10 c. £8
Lisbon, 5 t. 1 72
Sydney, 1 1 17
Constantinople, 2 40
Santos, 4 18 73

Cream of Tartar—

E. London, 1 cs. £10
Sydney, 2 t. 10 c. 185
Melbourne, 5 10 298
Auckland, 1 3 100
Algoa Bay, 1 2 29
Adelaide, 2 10 190
Townsville, 8 34
Brisbane, 10 37

Disinfectants—

Auckland, 6 cs. £19
Wellington, 19 pkgs. 32
Napier, 11 3 kgs. 11
Natal, 12 25
Sydney, 20 60
Brisbane, 7 drs. 23
Calcutta, 6 20 20
Adelaide, 3 c. 6

Flowers of Sulphur—

Geraldton, 2 t. £15

Magnesia—

Hamburg, 1 t. 10 c. £52

Manure—

Madeira, 10 t. £93
Gr. Canary, 9 7 c. 65
Demerara, 15 150
Cologne, 40 150
Landerneau, 300 1 3,000
Bordeaux, 39 17 170
Treport, 43 17 264
Marseilles, 15 110
Havre, 5 45
Natal, 1 29

Muriatic Acid—

Demerara, 6 cbys. £5

Nitric Acid—

Jersey, 28 cbys. £50

Oxalic Acid—

Lisbon, 1 t. 1 c. £28
Brussels, 1 27

Phosphoric Acid—

Demerara, 2 t. 8 c. £29
Boulogne, 11 45

Phosphorus—

Lisbon, 2 cs. £22
Dunedin, 1 200 lbs. 129
Santa Cruz de Tenerife, 4 c. 46

Potash—

Auckland, 8 c. £17

Potash Crystals—

Gallipoli, 3 c. £36

Potash Salts—

Townsville, 5 t. 3 c. £638
Natal, 25 3,030

Potassium Bichromate—

Constantinople, 1 t. 5 c. £53
Rio de Janeiro, 4 cks. 18

Potassium Chlorate—

Lisbon, 5 c. £20

Potassium Prussiate—

Lisbon, 14 c. £51

Saltpetre—

Bahia, 6 t. 14 c. £151
Rio de Janeiro, 7 12 170
Madeira, 5 7
Auckland, 1 113
Valencia, 1 7 28
Rotterdam, 1 18 40

Sheep Dip—

E. London, 250 dms. £48
Auckland, 145 pkgs. 156
Natal, 1 t. 25
Calcutta, 40 drs. 24
Nelson, 80 49
Algoa Bay, 3 17 cs 85

Soda Crystals—

Bermuda, 1 t. 10 c. £6

Soda Salts—

Montreal, 12 cs. £160

Sodium Bicarbonate—

E. London, 4 c. £3
Wellington, 1 t. 5 13
Dunedin, 1 5 10
Townsville, 1 10 4
Barbadoes, 1 7

Sodium Carbonate—

Invercargill, 1 t. £8

Sodium Sulphate—

New York, 1 cs. £6

Strychnine—

Dunedin, 800 oz. £97
Cape Town, 500 50

Sulphur—

Demerara, 3 t. 19 c. £31
New York, 2 cks. 22

Sulphuric Acid—

Madeira, 1 t. £10
Algoa Bay, 30 cs. 22

Superphosphate—

Calicut, 10 t. £50

Tartaric Acid—

Montreal, 5 c. £26
Melbourne, 2 t. 5 330
Auckland, 2 cs. 12
Algoa Bay, 1 13

LIVERPOOL.

Week ending September 27th.

Acetic Acid—

Rio de Janeiro, 7 t. 15 c. 3 q. £93

Albumen—

New York, 12 c. £130
Vera Cruz, 8 40

Alum—

Trieste, 3 t. 17 c. £122
B. Ayres, 13 1 63
Bombay, 13 15 74
Penang, 1 5 12
Patras, 1 16 12
Salonica, 1 4 6
Alexandretta, 2 10 15
Sydney, 3 2 20

Ammonia (Liquid)—

M. Video, 19 c. 2 q. £44
Coquimbo, 3 12

Ammonium Carbonate—

Hiogo, 1 t. 4 c. 2 q. £30
Hamburg, 5 9
Valparaiso, 3 95

Ammonium Chloride—

St. Petersburg, 1 t. £36

Ammonium Sulphate—

Rouen, 40 t. 17 c. £449
Gutajewsky, 30 18 442
Hamburg, 40 15 3 q. 110
Rotterdam, 10 3 72
Montreal, 4 19 3 72
Bordeaux, 10 5 2 150

Antimony—

Bombay, 1 ck. £51

Asbestos—

Rangoon, 2 cs. £24

Barium Chlorate—

Rotterdam, 5 c. £24

Barytes—

Oporto, 4 cks. £56

Bleaching Powder—

Baltimore, 114 cks. £56
Boston, 102
Geffe, 55
Ghent, 66
Haip Hong, 17 brls.
Rio de Janeiro, 40 kgs.
Rouen, 59
San Francisco, 80
B. Ayres, 21 50
Havana, 21

Bone Waste—

Rouen, 8 t. £56

Boric Acid—

Montreal, 8 c. 3 q. £17
Antwerp, 1 7 1 51
Stockholm, 8 3 3 244

Borax—

Rangoon, 1 t. 2 c. 2 q. £34
Antwerp, 1 29
Corrunna, 9 1 13
Yokohama, 10 1 18

Calcined Magnesia—

Trieste, 1 cs. £54

Carbolic Acid—

Baltimore, 1 t. 4 c. 2 q. £54
Rouen, 1 2 52
Hamburg, 11 3 554
Galatz, 12 25
Rotterdam, 10 600

Castor Oil—

Addab, 10 cs. £34
Charlotte Town, 5
Gibraltar, 3 brls.

Caustic Soda—

Alexandria, 30 kgs. £8
Cadiz, 16 brls.
Carril, 7 dms. 8
Haip Hong, 8
Hamburg, 34 8 cs.
Malaga, 82
Melbourne, 129
Monterey, 21
Pernambuco, 50
Rouen, 95
Vancouver City, 8
Yokohama, 100
Baltimore, 135 brls.

Barcelona, 28	Yokohama, 1	Porsgrund, 255	Lisbon, 17
B. Ayres, 2	Vera Cruz, 5	Rosario, 9	Maranhã, 85
Calcutta, 20	Barcelona, 5 L. 130	Rotterdam, 311	Montreal, 108
Ceara, 5	Paint—	Santos, 2	Norfolk, 4
Oporto, 62	Curacao, 1 ck. 30 kgs.	Victoria, B.C., 20	Philadelphia, 185
Penang, 30	Kingston, Ja., 80	Barbadoes, 50	Riga, 341
Rio de Janeiro, 18	Lisbon, 10 cs. 10 dms.	Brass, 35	Stockholm, 2
St. Petersburg, 100	Para, 34	B. Ayres, 4	Vancouver City, 14
Chemicals (otherwise undescribed)	Porto Rico, 68	Fredericia, 756	Adelaide, 66
Santos, 32 cs. £163	Rangoon, 89	Gr. Bassa, 5	Amsterdam, 13
Alexandria, 1 c. 8	Tabon, 1	Lagos, 200	Melbourne, 13
New York, 5 t. 125	Accra, 2 30	Melbourne, 50	New York, 156 tcs. 2
Cairo, 7 3 1 q. 250	Antwerp, 22 10	M. Video, 2	Oporto, 5
Stettin, 6 10	Cadiz, 37	Montreal, 840	Parnahiba, 10 brls.
Palermo, 10 17	Colombo, 24	Para, 25 10	Rosario, 20
Mersyne, 8 14	Demerara, 90	Rangoon, 8	Rouen, 39 tcs.
Beyrout, 1 7 48	Guayaquil, 9	Rouen, 15	San Francisco, 20 brls.
Odessa, 1 8 47	Havana, 1	Sierra Leone, 103	Stettin, 70
China Clay—	Maranhã, 3	Trinidad, 36	Sydney, 79 5
Rio de Janeiro, 8 t.	Nassau, 3	Saltpetre—	Toronto, 13 tcs.
Bombay, 40 2 c.	Rotterdam, 23	Para, 10 c. £12	Venice, 9
Boston, 604	Sagua la Grande, 2	Sheep Dip—	Soda Crystals—
New York, 98 10	Singapore, 40 dms.	Montreal, 1 t. 6 c. £40	B. Ayres, 100 brls.
Citric Acid—	Painters' Colours—	Natal, 10 cs. 58	Philadelphia, 280
Vera Cruz, 6 c. 3 q. £58	Accra, 1 cs. 80 kgs.	Craddock, 1 6 2 q. 37	Batavia, 15 cks.
Citrochloric Acid—	Alexandria, 22 246 4 brls.	Pt. Elizabeth, 1 6 2 37	Boston, 56
Lisbon, 1 cs. £5	Bombay, 109 12 ck. 55 178	Punta Arenas, 13 17 332	Colombo, 10
Coal Products—	Calcutta, 31 1	Pt. Natal, 2 9 3 52	Montreal, 334 40 117 l
Alizarine Oil	Cape Town, 4 42 1	B. Ayres, 14 14 3 390	Rosario, 100
Lisbon, 1 ck.	Ceara, 63	Algoa Bay, 5 3 10	Sourabaya, 333
Rio de Janeiro, 23	Corunna, 1	Size—	Stettin, 2
Aniline Oil	Guayaquil, 30	Boston, 15 brls. 8 kgs.	Toronto, 150
Lisbon, 1 dm.	Malta, 38	Calcutta, 18	Sodium Arsenate—
Rouen, 2	Montreal, 12 2 3	Hamburg, 3 cks.	Lisbon, 5 cks.
Aniline Salts	New York, 14	Rotterdam, 16	Sodium Borate—
Syria, 1 ck.	Pernambuco, 1 1 dm.	Soap—	Hamburg, 1 ck.
Creosote Oil	Santos, 50 5	Addah, 100 bxs.	Havre, 50 cs.
Copenhagen, 20 brls.	Amsterdam, 6	Alexandria, 2 2 175	Montreal, 24 brls.
Bordeaux, 20 dms.	Antwerp, 24	Algoa Bay, 40	Stockholm, 7 cks.
Pitch	Beyrout, 50	Annatto Bay, 2	Sodium Bicarbonate—
Rouen, 53 tins.	Boston, 90	Antwerp, 50 5	Amsterdam, 20 kgs. 7 cks
Cette, 1,259 t.	Brass, 2	Axim, 63	Cadiz, 20
Tar	Corfu, 2	Bangkok, 1	Constantinople, 40 kgs. 12 brls
Sierra Leone, 20 brls. 10 cks.	Galatz, 200	Barbadoes, 255	Genoa, 10 10 cks.
Galatz, 25	Genoa, 2	Benin, 600	Palermo, 4
Copperas—	Hamburg, 2	Bombay, 1,750 17 3 cks.	Adelaide, 50
Bombay, 33 t. 19 c. 1 q. £54	Lisbon, 6 34 11	Bugama, 50	Bombay, 85
Beyrout, 2 13 2 6	Maranhã, 4 12 pkgs. 8 fms.	Calcutta, 1	Calcutta, 530
Copper Sulphate—	Melbourne, 34	C. C. Castle, 158	Dunkirk, 20
Stettin, 9 c. 1 q. £6	M. Video, 27 3 35	Cape Town, 1,278	Hamburg, 40
Amsterdam, 7 t. 6 3 103	Old Calabar, 10	Constantinople, 100 4	Havana, 50
Corunna, 1 19 2 30	Philadelphia, 2	Demerara, 3,407 1	Hiogo, 800
Alexandria, 4 10 3 71	Puerto Plata, 30	Dominica, 25	Kingston, Ja., 20
Constantinople, 2 29	Rangoon, 30	E. London, 1,678 90	Lisbon, 10
Ghent, 1 1 14	Rio de Janeiro, 1	Ghent, 200	Melbourne, 514
Vera Cruz, 10 152	Stettin, 6 10 brls.	Gibraltar, 319	Nagasaki, 200
Beyrout, 5 4	Syria, 10	Jamaica, 50	Oporto, 20
Boca, 1 15 3 31	Talcahuano, 1	Kingston, Ja., 1,480 10	Rosario, 100
Sydney, 3 10 55	Valparaiso, 21	Kurrachee, 600	Rotterdam, 30
Rouen, 102 7 1,598	Vera Cruz, 4	Lanzarote, 99	St. Petersburg, 600
Dextrine—	Paraffin Wax—	Leghorn, 1	Singapore, 20
Vera Cruz, 4 cks.	Patras, 5 cs.	Lisbon, 10 cs	Sydney, 200
Disinfectants—	Salonica, 15	Madras, 5	Toronto, 150
Algoa Bay, 1 t. £7	Potassium Bichromate—	Oporto, 1	Yokohama, 500
Constantinople, 7 c. 14	Passages, 1 t. 5 c. £48	Pt. Elizabeth, 1,200	Sodium Bichromate—
Piræus, 8 12	Yokohama, 3 3 q. 11	Rangoon, 14	Boston, 50 cs.
Alexandria, 2 10	Rio de Janeiro, 8 18	Rouen, 50	Passages, 3 kgs.
French Chalk—	Vera Cruz, 1 45	St. John's, N.F., 29	Salonica, 7 cks.
Singapore, 1 cs.	Potassium Chlorate—	Salt Pond, 70	Sodium Chlorate—
Guanine	Corunna, 6 c. £23	Shanghai, 6,387 7	Antwerp, 30 kgs.
Barcelona, 86 t. 18 c. £810	St. Petersburg, 42 t. 10 2,632	Singapore, 260 15	Stettin, 50 bgs.
Gypsum—	Rotterdam, 3 12 230	Spanish Town, 100	Rotterdam, 6 kgs.
Rio de Janeiro, 4 t. 3 q. £10	Naples, 18 59	Trinidad, 500	Sodium Hyposulphite—
Hydrochloric Acid—	Amsterdam, 3 8	Valparaiso, 4	Calcutta, 4 cs.
Coquimbo, 2 c. 2 q. £8	Genoa, 2 112	Antofagasto, 10	Sodium Silicate—
Lead Acetate—	Odessa, 1 56	Brussels, 400	Barcelona, 365 brls.
Calcutta, 1 t. 10 c. £44	Yokohama, 5 356	Callao, 3	Carril, 7
Magnesia—	New York, 5 15 337	Cameroons, 10	Cartagena, Sp, 10
Vera Cruz, 7 cs.	Gothenburg, 4 10 286	Coronel, 20	Smyrna, 40
Magnesium Chloride—	Hiogo, 10 620	Dry Harbour, 175	Syria, 10
Rouen, 10 t. 9 c. £25	Potassium Oxalate—	Falmouth, Ja., 300	Adelaide, 19 cks.
Magnesium Citrate—	Rio de Janeiro, 4 c. 2 q. £11	Hong Kong, 20	Montreal, 31
Corunna, 3 cs.	Potassium Prussiate—	Luca, Ja., 100	Oporto, 10
Magnesium Sulphate—	Genoa, 2 t. £150	Malta, 62	Spent Oxide—
Charlotte Town, 20 brls.	Potassium Stannate—	Montreal, 250	Dantzig, 691 t. 6
Manure—	Bombay, 1 t. 3 c. 1 q. £87	N. Orleans, 50	Sulphur—
Teneriffe, 5 t. £40	Sal-acetos—	New York, 25 46	Oporto, 225 t.
Rocheport, 500 5 c. 2 137	Trieste, 4 c. 2 q. £10	Penang, 4 6	Para, 1
Havre, 250 3 1,203	Salt—	St. Domingo, 20	Charlotte Town, 2 10 c.
St. Nazaire, 985 4 3 q. 4 838	Baltimore, 90 t.	Santa Cruz, 80	Antwerp, 15 2 1 q.
Charlotte Town, 7 16 30	Boston, 220	Teneriffe, 575	Boston, 200 5
Valencia, 50 9 1 135	Calcutta, 1,245	Toronto, 650	Rouen, 18 14
Metallic Sodium—	Cameroons, 16 15 c.	Vera Cruz, 3	Montreal, 3 17
Rotterdam, 7 t. 4 c. 2 q. £1,538	Charlotte Town, 200	Warri, 100	Sulphuric Acid—
Mica—	Copenhagen, 605	Soda Alkali—	Rio Grande do Sul, 18 c. 2 q.
Canada, 2 cs.	Demerara, 49	Buffalo, 60 brls.	Superphosphate—
New York, 4	Ghent, 240	Constantinople, 35	Stettin, 252 t. 5 c. 1
Nitric Acid—	Loanda, 17 10	Montreal, 50	Tartaric Acid—
Coquimbo, 3 c. £13	N. Orleans, 65	Boston, 100	Vera Cruz, 6 c.
Oxalic Acid—	New York, 40	Calcutta, 32 80 brls. 100	Turpentine—
Rotterdam, 14 c. £22	Old Calabar, 65	Ghent, 21	Lisbon, 10 dms.
	Pernambuco, 8	Gothenburg, 21	

10	1 cs.	
2	6 brls.	
3	1 ck.	
1	6 dms.	
	15 tins.	
loride—	8 t. 9 c. 2 q. £115	
ide—		
40,	4 brls.	
HULL.		
ending September 23rd.		
161 cks.		
for,		
ium Sulphate—		
am,	250 bgs.	
Salts—		
	25 cs. 139 cks.	
100 bls.		
lag—		
530 t.		
503		
ng Powder—		
10 cks.		
of Lime—		
730 bgs.		
1 bl.		
dm,	8 cks.	
am,	5	
Soda—		
3 cks.		
55 dms.		
for,	18 20	
50		
7		
1		
19		
als (otherwise undescribed)		
9 cks. 17 pks.		
dam,	20 10	
dria,	18 cs.	
1		
2		
ux,	20	
nia,	44 pkgs.	
eim,	338 slbs.	
28		
12		
burg,	10 pkgs. 8	
rg,	8 222	
65		
23		
dam,	44 1 95	
olm,	16	
burg,	153 100 1	
37	1 12	
rg,	6	
10		
eed Oil—		
dam,	20 c.	
pi,	98	
10		
burg,	250	
rg,	700	
dam,	1,545	
olm,	34	
130		
ns (otherwise undescribed)		
dam,	1 bl.	
1	3 cs. 43 cks.	
rg,	1	
ersburg,	13 41	
200 bgs.	11 pkgs.	
d Oil—		
8 c.		
142		
ux,	35	
ania,	458	
ansand,	71	
eim,	169	
gfor,	103	
rg,	54	
ork,	50	
lam,	158	
ger,	108	
101 bls.		
22 t.		
rg,	201	
118		
l White—		
gen,	200 bls.	
ersburg,	700 bgs.	

Ochre—		
San Francisco,	50 cks.	
Painters' Colours—		
Antwerp,	33 cks. 5 cs.	
Alexandria,	2	3 dms.
Bergen,	2	6
Bordeaux,	4	1 pkge.
Christiania,	1	
Drontheim,	1	48 pks.
Danzig,	2	
Dunkirk,	22	
Genoa,	82	
Hamburg,	25	
New York,	10	
Rotterdam,	9	
Stockholm,	4	
San Francisco,	3	
St. Petersburg,	50 1 5	
Stettin,	6	
Uleaborg,	2 1	
Wasa,	1	
Paris White—		
San Francisco,	207 cks.	
Pitch—		
Antwerp,	81 t.	
Silicate—		
Christiania,	20 cks.	
Size—		
Flushing,	10 cks.	
Hamburg,	2	
Soap—		
Bergen,	20 cs.	
Christiania,	55 8 bls.	
Rotterdam,	20	
Tallow—		
Stockholm,	10 cks.	
Tar—		
Abo,	52 cks.	
Amsterdam,	6	
Danzig,	5	
Helsingfors,	10	
Hamburg,	8	
Rotterdam,	28	
Stettin,	1	
Wasa,	12	
Terra Alba—		
San Francisco,	7 cks.	
Ultramarine—		
New York,	60 cks.	
Yarnish—		
Amsterdam,	5 cks.	
Antwerp,	1	1 bl.
Alexandria,		3 cs.
Danzig,		
Naples,	3 1	
Rotterdam,	3	

GLASGOW.

Week ending September 28th.

Ammonium Sulphate—		
Hamburg,	150 t.	£2,127
Rouen,	20 6½ c.	300
Bleaching Powder—		
Montreal,	12 t. ½ c.	£95
Sydney,	7 5¼	79
Borax—		
Quebec,	3 t. 6¼ c.	£101
Caustic Soda—		
Valparaiso,	7 t. 11¼ c.	£80
Chemicals (otherwise undescribed)		
Calcutta,		£46
Coal Products—		
Aniline Dyes		
Calcutta,		£22
Creosote Oil		
Christiania,	40 brls.	£20
Pitch		
Quebec,	22 t. 17½ c.	£41
Dieppe,	515	721
Hainburg,	10 10	£9. 18s.
Valparaiso,	109 16¼	140
New York,	160 17	188
Montreal,	63 11	107
Calcutta,		90
Tar		
Philadelphia,	57 t.	£120
Coal Tar Products (otherwise un-		
described)—		
Dieppe,	9 t.	£125
Rotterdam,	14 dms.	110
Copperas—		
Bombay,	30 t. 10 c.	£66
Cottonseed Oil—		
Hamburg,	6 t. 6 c.	£152
Dried Blood—		
Rouen,	10 t. 3½ c.	£80
Linseed Oil—		
Alexandria,	4 t. 9 c.	£102

Litharge—		
Rotterdam,	1 ck.	£5
Magnesium Sulphate—		
Sydney,	3 t. 8 c.	£36. 11s.
Christiania,	10	£31
Manganese—		
Hamburg,	2 t. 13 c.	£28
Antwerp,	11 11¼	110
Manganese Oxide—		
New York,	10 t. 1 c.	£105
Manure—		
New York,	10 t.	£10
Paint—		
Barbadoes,	18¼ c.	£25
Jamaica,		£76
New York,		97
Bombay,	2 t. 8	23
Painters' Colours—		
Bombay,	9 t. ¼ c.	£123
Sydney,		82
Paraffin Wax—		
Hamburg,	3 t. 4 c.	£85
Amsterdam,	11	221
Antwerp,	11 6¼	304
Hungary,	14 12½	274
B. Ayres,	1 4	30
Potassium Bichromate—		
Philadelphia,	7 t. ¼ c.	£262
Quebec,	3 8½	135
Hamburg,	1 ck.	20
Rotterdam,	1	20
Antwerp,	10 t. 16¼	425
Italy,	4 8¼	197
Rouen,	5 4¼	171
Sydney,	1	45
Rosin Oil—		
Rotterdam,	30 brls.	£53
Amsterdam,	6	12
Soap—		
Trinidad,	4 t. 3 c.	£45
New York,	8 1½	40
Soda Ash—		
Philadelphia,	50 t. 4 c.	£176
Soda Crystals—		
Valparaiso,	32 t. 6¼ c.	£93
Sodium Bichromate—		
Quebec,	1 t. 9¼ c.	£50
Antwerp,	4 7½	140
White Lead—		
Halifax, N.S.,	13 t. 14½ c.	£109
Sydney,	11	234

TYNE.

Week ending September 23rd.

Alkali—		
Riga,	20 t. 3 c.	
Rotterdam,	14 5	
St. Petersburg,	31 7	
Alum Cake—		
Odense,	10 t. 1 c.	
Ammonia Alkali—		
Odense,	5 t.	
Ammonium Carbonate—		
Montreal,	1 t.	
Ammonium Sulphate—		
Hamburg,	50 t.	
Rotterdam,	30 5 c.	
Antimony—		
Antwerp,	2 t.	
Montreal,	2	
Barcelona,	4 5 c.	
Arsenic—		
Barcelona,	2 t. 14 c.	
Barium Carbonate—		
Copenhagen,	10 c.	
St. Petersburg,	108 t.	
Barytes—		
St. Petersburg,	24 t. 19 c.	
Bleaching Powder—		
Antwerp,	30 t.	
Hamburg,	10 3 c.	
Montreal,	48 9	
Abo,	2 4	
Helsingfors,	20 4	
Malmo,	1	
Christiania,	29 19	
St. Petersburg,	299 19	
Horsens,	1 10	
Riga,	30 1	
Rotterdam,	24 1	
Drontheim,	10 2	
Gothenburg,	5	
Caustic Soda—		
Antwerp,	7 t. 11 c.	
Hamburg,	13 16	
Genoa,	14 10	

Abo,	6	8
Helsingfors,		1
Wyburg,	2	10
Aarhus,	1	4
Christiania,	10	3
Ghent,	4	18
St. Petersburg,	110	6
Riga,	44	19
Copenhagen,	10	19
Barcelona,	9	
San Francisco,	29	
Seville,	15	7
Colours—		
Naples,	2 t.	9 c.
Copperas—		
Bergen,	1 t.	10 c.
Litharge—		
Montreal,	10 t.	2 c.
Abo,	5	
Riga,	11	3
Magnesia—		
Barcelona,	5 t.	16 c.
Manure—		
Porsgrund,	5 t.	
Naphthalene—		
Riga,	25 t.	18 c.
Oxalic Acid—		
St. Petersburg,	5 t.	5 c.
Paint—		
Rotterdam,		5 t.
Paraffin Wax—		
Barcelona,	20 t.	10 c.
Pitch—		
Naples,	40 t.	
Soda—		
Abo,	24 t.	18 c.
Hango,		10
Helsingfors,	15	16
Wyburg,		11
Odense,	5	
Aarhus,	2	18
Middlefort,	50	2
Rotterdam,	20	
Svendborg,	52	12
Soda Ash—		
Hamburg,	2 t.	
Helsingfors,	13	8 c.
Christiania,	50	16
Copenhagen,	24	16
Gothenburg,	48	9
Sodium Hyposulphite—		
Montreal,	5 t.	3 c.
Sodium Sulphate—		
Spezzia,	100 t.	
Sodium Sulphite—		
Barcelona,	1 t.	11 c.
Sulphur—		
Wyburg,		6 c.
Malmo,	10 t.	
Drontheim,	50	
Superphosphate—		
La Rochelle,	480 t.	3 c.
Aarhus,	5	17
White Lead—		
Montreal,	60 t.	6 c.
Helsingfors,		9

GOOLE.

Week ending September 20th.

Alum—		
Christiania,	400 t.	
Chemicals (otherwise undescribed)		
Hamburg,	25 cks.	
Rotterdam,	28	
Coal Products (otherwise undes.)		
Boulogne,	26 cks.	
Ghent,	59 dms.	
Rotterdam,	24	
Creosote—		
Ostend,	160	
Pitch—		
Antwerp,	320 t.	
Pyrites—		
Rotterdam,	63 t.	

GRIMSBY.

Week ending September 23rd.

Basic Slag—		
Bordeaux,	700 t.	
Chemicals (otherwise undescribed)		
Hamburg,	4 cks. 16 pkgs.	
Coal Products (otherwise un c.)		
Dieppe,	200 cks. 6 dms.	

PRICES CURRENT.

WEDNESDAY, OCTOBER 4th, 1863

PREPARED BY MESSRS. HIGGINBOTTOM AND CO., 116, PORTLAND STREET, MANCHESTER.

The values stated are F.O.R. at maker's works, or at usual ports of shipment in U.K. The price in different localities may vary.

Acids :—				£	s.	d.					£	s.	d.
Acetic, 25 % and 40 %	per cwt.	7/3	&	11/-	Lime, Acetate (brown)	per ton	6	15	0				
" Glacial	"			50/-	" (grey)	"	11	5	0				
Arsenic S.G., 2000°	"	0	14	6	Magnesium (ribbon and wire)	per oz.	0	2	3				
Fluoric	per lb.	0	0	3 3/4	" Chloride (ex ship)	per ton	2	7	6				
Muriatic (Tower Salts), 30° Tw.	per bottle	0	0	10	" Carbonate	per cwt.	1	17	6				
" (Cylinder), 30° Tw.	"	0	3	0	" Hydrate	per ton	17	0	0				
Nitric 80° Tw.	per lb.	0	0	1 3/4	" Sulphate (Epsom Salts)	per ton	2	19	0				
Nitrous	"	0	0	1 3/4	Manganese, Sulphate	"	17	15	0				
Oxalic	nett	0	0	3 3/4	" Borate	per cwt.	2	12	6				
Phosphoric, 1750°	"	0	1	2 1/2	" Ore, 70 %	per ton	4	5	0				
Picric	"	0	1	0	Methylated Spirit, 61° O.P.	per gallon	0	2	0				
Sulphuric (fuming 50 %)	per ton	15	10	0	Naphtha (Wood), Solvent	"	0	3	0				
" (monohydrate)	"	5	10	0	" Miscible, 60° O.P.	"	0	4	0				
" (Pyrites, 168°)	"	3	0	0	Oils :—								
" 150°	"	1	5	0	Cotton-seed	per ton	24	0	0				
" (free from arsenic, 145°)	"	1	6	0	Linseed	"	22	10	0				
Sulphurous (solution) S.G. 1025	"	3	0	0	Lubricating, Scotch, 890°—895°	"	7	5	0				
Tannic (pure)	per lb.	0	1	2	Petroleum, Russian	per gallon	0	0	4				
Tartaric	"	0	0	11 1/2	" American	"	0	0	3 1/2				
Arsenic, white powdered	nett	13	10	0	Potassium (metal)	per oz.	0	3	7				
Alum (loose lump)	"	5	2	6	" Bichromate	per lb.	0	0	4 1/2				
Alumina Sulphate (pure)	"	5	0	0	" Carbonate, 90% (ex ship)	per ton	16	15	0				
Aluminoferic	"	2	10	0	" Chlorate	per lb.	0	0	8 1/2				
Aluminium	per lb.	0	4	0	" Cyanide, 98%	"	0	2	0				
Ammonia, Anhydrous	"	0	1	2	" Hydrate (Caustic Potash) 80/85 %	per ton	21	15	0				
" 880=28°	per lb.	0	0	3	" (Caustic Potash) 75/80 %	"	20	10	0				
" =24°	"	0	0	2 1/4	" (Caustic Potash) 70/75 %	"	20	0	0				
" Carbonate	nett	0	0	3 3/4	" Nitrate (refined)	per cwt.	1	2	6				
" Muriate	per ton	23	0	0	" Permanganate	per cwt.	3	5	0				
" (sal-ammoniac) 1st & 2nd	per cwt.	37/-	&	35/-	" Prussiate Yellow	per lb.	0	0	8 1/2				
" Nitrate	per ton	42	0	0	" Sulphate, 90 % (ex ship)	per ton	9	15	0				
" Phosphate	per lb.	0	0	10 1/2	" Muriate, 80 % (do.)	"	8	0	0				
" Sulphate (grey) London		Nominal			Silver (metal)	per oz.	0	2	9 1/2				
" (grey) Hull		Nominal			" Nitrate	"	0	2	10				
Aniline Oil (pure)	per lb.	0	0	5 1/2	Sodium (metal)	per lb.	0	3	4				
Aniline Salt	"	0	0	5 1/4	" Carb. (refined Soda-ash) 48 %	nett	per ton	5	10	0			
Antimony	per ton	45	10	0	" (Caustic Soda-ash) 48 %	"	4	10	0				
" (tartar emetic)	per lb.	0	1	0	" (Carb. Soda-ash) 48 %	"	4	10	0				
" (golden sulphide)	"	0	0	10	" (Carb. Soda-ash) 58 %	"	4	10	0				
Barium Chloride	per ton	7	10	0	" (Soda Crystals)	"	2	17	6				
" Carbonate (native)	"	3	10	0	" Acetate (ex-ship)	"	16	0	0				
" Sulphate (native levigated)	"	45/-	to	75/-	" Arseniate, 45 %	"	11	0	0				
Bleaching Powder, 35 %	nett	8	10	0	" Chlorate	per lb.	0	0	8 1/2				
" Liquor, 7 %	"	3	10	0	" Borate (Borax)	net, per ton	28	10	0				
Bisulphide of Carbon	"	11	15	0	" Bichromate	per lb.	0	0	3 1/2				
Chromium Acetate (crystal)	per lb.	0	0	6	" Hydrate (77 % Caustic Soda) (f.o.b.) net pr. ton	12	10	0					
Calcium Chloride	per ton	2	5	0	" (74 % Caustic Soda)	"	12	5	0				
China Clay (at Runcorn) in bulk	"	17/6	to	35/-	" (70 % Caustic Soda)	"	11	5	0				
Coal Tar Products and Dyes :—													
Alizarine (artificial) 20 %	net	per lb.	0	0	8	" (60 % Caustic Soda)	10	5	0				
Magenta	"	"	0	3	9	" (60 % Caustic Soda, cream) (f.o.b.)	10	0	0				
Anthracene, 30 % A, f.o.b. London	per unit	per cwt.	0	1	2	" Bicarbonate	"	7	0	0			
Benzol, 90 % nominal	per gallon	0	1	5	" Hyposulphite	"	6	10	0				
50/90	"	"	0	1	5	" Manganate, 30%	"	16	0	0			
Carbolic Acid (crystallised 40°)	per lb.	0	0	6 1/4	" Nitrate (95 % ex-ship Liverpool)	per cwt.	0	9	3				
" (crude 60°)	per gallon	0	1	6	" Nitrite, 98 %	per ton	29	0	0				
Creosote (ordinary)	"	"	0	0	1 3/4	" Phosphate	"	15	0	0			
" (filtered for Lucigen light)	"	"	0	0	2 1/2	" Prussiate	per lb.	0	0	7			
Crude Naphtha 30 % @ 120° C.	"	"	0	0	8	" Silicate (glass)	per ton	5	7	1 1/4			
Grease Oils, 22° Tw.	per ton	2	5	0	" (liquid, 100° Tw.)	"	4	5	0				
Pitch, f.o.b. Liverpool or Garston	"	"	1	5	0	" Stannate, 40 %	per cwt.	3	0	0			
Solvent Naphtha, 90 % at 160°	per gallon	0	1	1	" Sulphate (Salt-cake)	per ton	1	2	6				
" Lucigen" and "Wells Oils	"	"	0	0	1 1/2	" (Glauber's Salts)	"	1	10	0			
Copper	per ton	41	17	6	" Sulphide	"	8	10	0				
" Sulphate	"	"	16	0	0	" Sulphite	"	5	15	0			
" Oxide (copper scales)	"	"	40	0	0	Strontium Hydrate, 100%	"	8	10	0			
Glycerine (crude)	"	"	13	0	0	Sulphocyanide Ammonium, 95 %	per lb.	0	0	7			
" (distilled S.G. 1250°)	"	"	43	0	0	" Barium, 95 %	"	0	0	5 1/4			
Iodine	nett, per oz.	0	0	9	" Potassium	"	0	0	7				
Iron Sulphate (copperas)	per ton	1	12	6	Sulphur (Flowers)	per ton	8	0	0				
" Sulphide (antimony slag)	"	"	2	0	0	" (Roll Brimstone)	"	6	10	0			
Lead (sheet) for cash	"	"	11	0	0	" Brimstone: Best Quality	"	4	2	6			
" Litharge Flake (ex ship)	"	"	13	0	0	Superphosphate of Lime (26%)	"	2	7	6			
" Acetate (white)	"	"	25	15	0	Tallow	"	28	0	0			
" brown)	"	"	17	10	0	Tin (English Ignots)	"	85	0	0			
" Carbonate (white lead) pure	"	"	20	0	0	" Crystals	per lb.	0	0	6			
" Nitrate	"	"	20	0	0	Zinc (Spelter)	per ton	17	2	6			
						" Chloride (solution, 96° Tw.)	"	5	15	0			

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"GOOD IN EVERYTHING."

THOUGH there is nothing definitely settled yet, the Con-
ference of Mayors, which was held on Monday last at
Sheffield, seems to sound the knell of the coal strike.
Another indication of the beginning of the end is to be
found in the fact that on the London Coal Exchange pur-
chasers are insisting upon a reduction in prices. So far
their demands have not been complied with, but so firmly do
they adhere to their request for a reduction, that the busi-
ness done is virtually reduced to nothing.

Naturally, the scarcity of coal has made itself very gene-
rally felt, and particularly so in the alkali and heavy chemicals
trade. The Board of Trade returns for the past month show
very clearly how quickly the disturbance has proclaimed
itself, since the exports of alkali during the last three
months have been smaller than they were during any of the
six foregoing months. This last month, moreover, the falling-
off was most marked, the figures being lower than they had
been all the year, the decrease amounting to 8,400 tons com-
pared with the same month in 1892. In bleaching materials
we have like results, though perhaps in less degree, the
returns showing a falling-off of 3,450 tons for the month.

It is needless to emphasise the direct influence which a
stoppage in the coal trade has upon the salt industry, and
somewhat alarming statements of the decline in the salt
shipments have been floating about. A comparison of the
figures for this year and last, however, shows very little
variation in the actual amount of salt sent out of the country,
and the last three months are but little below the average.
Undoubtedly there has been a steady decline in the total
shipments of salt for some years past, there being a deficiency
of about 17,000 tons in 1892 as compared with the previous year,
but this fact, in conjunction with the prevailing strike, only
tends to improve the aspect presented by the returns for the
last nine months, which show that up to the end of that
period there is a decrease of 3,300 tons only.

To those who wish to cripple capital it may be satisfactory
to see trade in general upset and damaged by the coal strike;
but apart from the distress and privation which it has brought
on those who were helpless to avert the danger, the net result
seems likely to lead to good only, and that good will be
wrought for capital and not labour. Foreign competition has
added largely to the trials which no doubt labour has had to
put up with, but the present *status* does not tend to lessen
them, and already we can see that the opening which this
strike makes for increased competition has been promptly
filled by America, which country having fought its way to
supremacy in the steel and iron trades, is taking steps to
supply us with coal.

Further, an impetus has been given to foreign industries
Oil as a fuel is receiving closer attention daily by railway and
industrial undertakings, and apart from the fact that quite
recently it was announced in the cotton industry, and also
by another railway, that the use of oil fuel had been decided

upon, the imports of oils during September show a remarkable increase.

There is, however, yet another factor which is the outcome of precarious times such as the present, and that is economy. Rigid economy is a universal principle in every branch of trade, but under ordinary circumstances its enforcement is in a manner optional. Not so is the case, however, when a strike cutting off the supply of that article which is the very life and being of industrial operations prevails. The economy, hitherto in a degree optional, becomes compulsory, and its exercise no longer a perfunctory performance, with the result that not unfrequently it is found that half the coal *can* be made to do the work formerly done by double the quantity. What is the outcome?—and here our point is again shown—the lesson learnt under duress is put into every day practice, and the act of compulsion becomes one of daily custom.

As witness we have the increased attention which is paid in these times to appliances for utilising waste energy. The amount of steam and heat which is wasted in works in the present day is much less than it used to be, but the economy effected by steam loops, feed water heaters, and improved furnaces is only pushed further by each succeeding strike; and it is perhaps as well for the interests of labour that we have not the advantages presented by natural gas to avail ourselves of, like they have in America, where natural gas is put to numerous uses, in chemical works in particular.

Apparently, therefore, these strikes are for the masters' great lessons in economy. As paper makers in the past, when compelled, found they could stop polluting the rivers, and make a profit withal, so masters find they can when pushed get more work out of their coal than they used to do, and furthermore effect a considerable saving. Who derives the benefit in this case?

We hear on all sides that the stoppage of the pits enables coal-owners to dispose of what, under ordinary circumstances would be waste coal at a very respectable figure, while in other branches of trade prices are enhanced. When fuel becomes too dear and scarce chemical works close and iron works shut down, while stocks fetch good prices. The last few weeks has seen an advance of thirty shillings per ton in caustic soda, and a like movement to the extent of ten shillings per ton in bleaching powder. Creosote and fuel oils have in certain localities advanced as much as 125 per cent., and are yet cheaper than coal, which itself has fetched inflated prices. All this, if only lasting for a moderately prolonged period, does no great harm to producers, and again we are prone to ask who will derive the benefit, such as it may be? It is too early to state the loss which the nation will have sustained by the strike, though the amount is computed at between £20,000,000. and £30,000,000., yet this loss will be felt quite as much by labour as by capital, if not more so, and the advantages gained are at present more or less chimerical.

The education of the masses has long been a platform cry, and educational measures and Technical Education Bills are now plentiful; but that portion of the community which is spared the opprobrium of being classed among the "masses" by contributing largely to the revenue and thus paying well for the privilege, do not seem to be much better off. Apparently the classes deriving the chief benefit consider their brethren somewhat hardly done by, and in return elect to give them from time to time an opportunity of practically applying the laws of economy; and thus voluntarily educate those who have provided them with compulsory

education, *gratis*. To judge by the times their efforts are not wasted, and manufacturers are quick to benefit by the lessons which the occasion affords. Perhaps it is as well that they are.

SKYE DIATOMITE.

KIESELGUHR, or as it is popularly termed "fossil meal," has now so firmly established itself in the arts and manufactures, that news of any fresh deposit is sure to be welcome to our readers.

Fossil meal has hitherto been almost a monopoly in the hands of foreign merchants, but recently large deposits have been discovered at Loch Quire and Loch Columbkille, in the Isle of Skye, whilst smaller deposits occur at Glen Snisdale and at Sartil in the same Isle. The finest and largest of these deposits is in Loch Quire, and its great purity is no doubt due to the purity of the water with which the loch is fed. An average sample of the material, as supplied by the Skye Diatomite Co., Portree, N.B., has been examined in our laboratory, and apart from the practical side of the question has afforded much pleasure, from the large number of various species of diatoms found therein. The calcined material from Loch Quire contains no less than 99 per cent. of silica, but, of course, taken with the organic matter and moisture, the silica in the original material will fall much below this. An ordinary sample as supplied for boiler covering, and analysed by us, contained:—

Silica	76.54
Moisture	7.30
Organic matter	8.20
Oxide of iron	3.50
Alumina	3.50
Lime	0.85

99.89

The highly valuable qualities of "diatomite" as a non-conductor of heat, especially in these times of scarcity, of even high priced fuel, is sure to recommend it to steam users. The boilers of many of our largest ocean going steamers are covered with it, as exemplified by the *Campania* and *Lucania*. The late Dr. Hofmann in his official report of the Vienna exhibition, says of infusorial earth, "its non-conducting properties are, according to my own experiments, almost incredible, and it is by far the best material for coating steam vessels of every description."

The Skye Diatomite Company are not boiler coverers, but by the courtesy of Mr. Alexander Macdonald, the secretary, we are able to give our readers several receipts for boiler and fire proof coverings.

RECIPE NO. 1.

65lbs. Diatomite.
28lbs. Pipe Clay, or Blue, or Red Clay.
19lbs. Waste fibre, either jute, flax, or any other cheap fibrous substance.

RECIPE NO. 2 (as prepared in Germany).

78lbs. Diatomite.
40lbs. Clay.
14lbs. Cow hair or horse hair.
7lbs. Linseed Oil.
7lbs. Flour.
5lbs. Molasses.

RECIPE NO. 3 (Fire proof).

56lbs. Diatomite, calcined.
28lbs. Pipe clay or ordinary clay.
28lbs. Asbestos fibre.

To make the composition ready for immediate application, the clay should first be put in a mill and water added till a thick clay magma is formed, the Diatomite is then added and lastly the fibre, the whole being, of course, thoroughly mixed. For applying the aforesaid compositions:—

1. Clean the surface to be covered as thoroughly as possible. It should be free from dust, rust, grease, or other extraneous matter. Grease can be cleaned off by using a solution of soda.
2. The composition is best applied when the surface to be covered is hot, as it then attains its greatest expansion. The drying is then also effected most quickly.
3. The dry composition is, before application, thoroughly mixed with about three times its own weight of boiling or hot water, so as to make it into a thick paste or mortar of doughy consistency. The first coat, for which a little more hot water is necessary, is applied more thinly than the other coats, either with the hand or with a suitable brush, like paint. After the first coat has become thoroughly dry, the remaining coats are applied with the hand. They should be thinly

applied (about $\frac{1}{4}$ inch for each coat). Each layer should be dry before the next is applied. The last coat can be finished off with a straight-edge and trowel. It can then be varnished or painted, or, still better, canvas or any other suitable covering can be used and painted over, thus securing a first-rate protection.

4. The composition when made wet for immediate use (which is done by adding two to three times their own weight of boiling water to the materials while being mixed), is very easily applied, it being necessary only to paint or rub over the heated surface with the composition, and on the first coat being dry, to apply the remaining coats in the manner already described.

The use of "fossil meal" is not however confined to its non-conducting properties; it has many other uses, such as covering retorts for sublimations, the manufacture of ultramarine, dynamite, isolating felt, soluble glass, smalt, porcelain, filtering materials, *papier mâché*, and even artificial meerschauum. It is also used as a loading material in the manufacture of soap, India rubber, safety matches, fireworks, and emery substitutes. There are other uses to which "fossil meal" is being put, such as the refining of sugar and syrups, the polishing of glass and metal, the absorption of acids, such as carbolic acid, sulphuric acid, and even of bromine and other fluids generally, whilst it has also been employed in the preservation of delicate fruits in transit from foreign climes. The London agents of the company are Messrs. Waddell and Sons, St. George's House, Eastcheap.

RECENT CUSTOMS DECISIONS.

COAL TAR PREPARATIONS.

IN the matter of the protest of Schoellkopf Aniline and Chemical Company, against the decision of the collector of customs at Buffalo, U.S.A., as to the rate and amount of duties chargeable on certain dichlorophthalic acid, imported January 9, 1893, the following is the opinion by General Appraiser Lunt.

The merchandise covered by this protest is invoiced as "dichlorophthalic," and was imported at Buffalo, January 9, 1893, by the Schoellkopf Aniline and Chemical Company.

1. Duty was assessed thereon at 20 per cent. ad valorem under paragraph 473, N. T., as an acid used for chemical or manufacturing purposes, not specially provided for in this Act.

2. That said merchandise is dichlorophthalic acid and is a coal tar preparation, not a colour or dye; that it is a chemical compound and an acid, the chief use and value of which is in its application to the construction of coal tar dyes, by combining the same with other chemicals.

3. That a very large proportion of coal tar colours or dyes and coal tar preparations are acids or possess acid properties.

Following and adopting our previous observations and conclusions, we hold that this acid is specially provided for in paragraph 19, N. T., and overrule the protest.

ABSOLUTE ALCOHOL—FREE.

In the matter of the protest of E. H. Bailey & Co., against the decision of the collector of customs at Philadelphia, U.S.A., as to the rate and amount of duties chargeable on certain absolute alcohol, imported March 8th, 1893, the following is the opinion by General Appraiser Somerville.

We find the merchandise to be "absolute alcohol."

The article was assessed for duty under paragraph 329 of the New Tariff Act as distilled spirits, and is claimed to be free of duty under paragraph 677, as a "scientific preparation," imported in good faith for the use of a college established for educational, scientific, or literary purposes.

We find that the merchandise was imported not for sale, but in good faith for the use of the University of Pennsylvania, which is an institution established for educational and scientific purposes, and further, that it is a "scientific preparation" within the meaning of the said paragraph 677, as defined in a previous decision which has been affirmed on appeal by the United States Circuit Court for the southern district of New York, and has since been fully acquiesced in by the Treasury Department.

The protest is sustained, the collector's decision reversed, and he is instructed to reliquidate the entry accordingly.

CHEMICAL ACTION AT LOW TEMPERATURES—It is stated by a contemporary that from his researches M. Pictet finds at a temperature of -80° C., or -112° F., a lump of sodium is not in the least acted upon by hydrochloric acid; but as the temperature rises the reaction begins, and becomes more and more energetic, until at length there is an explosion. Iron is attacked by the hydrochloric acid when the temperature is too low for the sodium to be attacked at all. Marble, in the same way, remains unaffected by hydrochloric acid,

Reports of Companies.

THE COMMERCIAL GAS CO.

The report of the directors of this company for the half-year ended June 30th, states that the revenue account shows a net profit of £48,410., making, with £511. received for interest, £48,921. Deducting therefrom £3,712. for interest on debenture stock, there remains standing to the credit of the net revenue account a balance of £45,209. available for dividend. The directors recommend that dividends be paid thereout, at the rates of £12. 10s. per cent. upon the old stock, and of £9. 10s. per cent. per annum upon the new stock, both less income-tax, and that the balance be carried forward to the next half-year.

AFRICAN GOLD RECOVERY CO., LTD.

The directors of this company announce that they have declared an interim dividend of 5 per cent. (free of income-tax), payable October 31st, to all shareholders on the register on October 20th. This is in addition to the 5 per cent. bonus distribution, payable on October 14th, declared at the meeting of the shareholders held on the 22nd inst.

THE GENERAL PHOSPHATE CORPORATION, LIMITED.

A winding-up order having been made against this company on Aug. 1st last, accounts are now submitted, accompanied by the observations of the Official Receiver and provisional liquidator (Mr. G. Stapylton Barnes). The liabilities to creditors are returned at £130,682., of which £78,358. are unsecured, the whole of the company's assets, estimated at £52,334., being covered by debentures. The total deficiency as regards contributories is stated to be £126,974. The Official Receiver states that the company was formed for the purpose of acquiring and working phosphate properties and engaging in undertakings or businesses connected therewith. The nominal capital was fixed at £1,000,000., divided into shares of £10. each, of which 500 are founders' shares and the remainder ordinary shares. The company appears to have originated in a scheme for the formation of a company to be called "The Phosphate Trust," which was never registered. A prospectus of the proposed "Phosphate Trust" was, however, printed, setting forth numerous phosphate properties, including those since purchased by the General Phosphate Corporation, Ltd., or in which that company has become interested. The company was registered on June 13th, 1890, and a prospectus bearing date the following day was issued to the public early in July following. The Official Receiver, after giving some further details, states that on July 30th, 1890, the board appointed a committee of directors to examine and report on the several properties offered to the Corporation, and on August 15th, 1890, authorised two of their number to negotiate for the purchase of certain phosphate properties known as the "High Falls" group at a price not exceeding £40,000. From a minute passed at a board meeting on the 25th of the same month, it appears that the directors resolved to make an offer for the purchase of additional properties known as the "Ross Mountain" group for £55,000. On September 3rd, 1890, a provisional contract was entered into for the purchase of the "High Falls" group for £40,000. The properties comprised in this group consisted of 13 lots, amounting in the aggregate to 1,450 acres, situated respectively in the townships of Portland West and Bowman, in the province of Quebec. A contract of a similar nature to the above was entered into on September 3rd, 1890, for the purchase by the company of the "Ross Mountain" group for the sum of £55,000. This group consisted of 10 lots, amounting in the aggregate to 1,210 acres, situated respectively in the townships of Templeton, East Portland, and Gore of Templeton, in the province of Quebec. On April 8th, 1891, the company signed the heads of an agreement with the London and Colonial Finance Corporation, Ltd., under which the two companies were to combine in a joint venture, since known as the "Super-phosphate scheme" or the "North Star scheme." This scheme had for its object the acquisition of the "North Star" and "Washington" mines, situate near the High Falls property, together with the lease of certain phosphate mills in the neighbourhood. The Official Receiver states that the failure of the company is attributed to insufficiency of working capital and to the fall in the phosphate market. From the facts, however, it would appear that the failure is also due to the manner in which the company was financed in 1891, and also to payments made in connection with the "North Star" scheme. A receiver for debenture holders has been appointed at the instance of the Debenture Corporation, Ltd., and is now in possession of the company's property. The Official Receiver is of opinion that further inquiry is desirable as to the promotion of the company and the conduct of its business.

RIO TINTO COMPANY, LTD.

The directors of the Rio Tinto Company, Ltd., announce an interim dividend of 7s. per share, free of income-tax.

TIPS FOR TRADERS.

COAL MINING in Japan has been on a rather better footing during the present year. The production of coal in this country is worthy of note. The following is an analysis of a coal from Yakashima:—Carbon, 79.26 per cent.; hydrogen, 5.86; oxygen, 8.76; sulphur, 0.11; ash, 4.51; water, 1.50. Another coal produced at Mické, which contains too much oily matter for ordinary use, is said to be very good for coke making.

MINERAL OIL and Salt are two out of the only five articles in the imports of Corea which showed an increase in the past year. The increase in mineral oil amounted to 191,000 gallons, and was chiefly American oil. Russian oil seems losing ground, owing, it is stated, to the fragile nature of the packages in which it is transmitted.

GLASS goods and lamps would have a good chance of competing with foreign articles in Beyrout, but great caution should be exercised in all branches of trade to secure trustworthy local agents. Manchester business is largely in the hands of men who live on the verge of bankruptcy, and most bankruptcies out there are fraudulent, and effected with impunity.

MATCHES of British manufacture would find favour in China, where the use of matches is increasing in lieu of the flint and steel. The matches from Japan, which virtually hold the market, are bad; five out of six failing to light, and only light on the box. There is an Anglo-Chinese factory at Tientsin, doing a local business, but these matches are liable to light too easily, being highly explosive—in fact, almost dangerous.

SOAP in Japan is a commodity in good demand. Though the local manufacture has been largely prosecuted of late years, the demand is greater than the supply. The amount of foreign soap imported shows an increase of 130 per cent., while there is a falling off of 42 per cent. in the amount exported.

TARIFF CHANGES.

There are from time to time many alterations in the Customs regulations abroad, which it is as well for those trading in chemicals, oils, paints, and raw materials to be acquainted with. The following are some of the most recent changes of interest to the foregoing:—

CHROMIC bases to be used for colouring enamels are classed, according to a recent decision of the French Customs authorities, in category 282.

METHYL IODIDE obtained by means of methylene without the use of alcohol is classed in the same category.

COPPER SULPHATE and any cupreous preparation to be used as a preventative against mildew is admitted into Portugal free of duty and conveyed free of cost over the Government railways. The vendor must state the percentage of copper sulphate in invoices of sale, or in the case of preparations the equivalent percentage of copper sulphate per kilogram must be stated. Such percentages and the distinguishing mark of the selling firm must be legibly stamped on the wrappers. The Government has appointed inspectors, and will make analyses in their official laboratories. Any discrepancies between analytical results and the invoice statements will be tried correctionally, and a fine equal to the clearance dues of the article sold imposed.

TURKEY RED dyeing apparatus (Mather and Platt's) for dyeing threads and textiles is subject to a duty of 10 lire per quintal when imported into Italy.

MATCH STICKS for the manufacture of matches are also subject to a duty of 6 lire per quintal.

BORACIC AND ACETIC ACIDS imported direct into Newfoundland for the purpose of preserving fish or fish glue are *duty free*.

COTTON SEED AND OLIVE OILS, under similar circumstances, are also exempt from duty.

PARCHMENT PAPER for wrapping fish, formerly assessed at 20 per cent. *ad. val.* is now admitted *free of duty*.

POSTAL CHANGES.—On and after the 1st of October, 1893, money orders payable at certain places in the Congo Free State may be obtained at any money order office in the United Kingdom. The places in question are—Banana, Boma, and Matadi. The orders should not be forwarded to the payees, but should be retained by the remitters as receipts.

The commission chargeable will be the same as for money orders payable at other places abroad, namely:—For sums not exceeding £2, 6d.; for sums exceeding £2, and not exceeding £5, 1s.; for sums exceeding £5, and not exceeding £7, 1s. 6d.; for sums exceeding £7, and not exceeding £10, 2s. No single money order may be issued for a larger amount than £10. Money orders will also be issued at the above-named places in the Congo Free State for payment in the United Kingdom.

IMPORTS AND EXPORTS FOR SEPTEMBER.

THE Board of Trade returns for September are, taking the coal strike into consideration, satisfactory. The increased import of oil is largely due to the amount of petroleum which has been landed, the quantity last month being nearly double that for the same month last year. Presumably the decrease in the exports of alkali and bleaching materials is due to the coal strike, there being a falling-off in alkali amounting to some 168,000 cwt.

IMPORTS OF FOREIGN AND COLONIAL PRODUCE.

		Quantities.	
		1892.	1893.
Margarine	Cwt.	115,861	117,134
Copper ore and regulus	Tons.	16,449	17,102
Hides—dry and wet	Cwt.	62,288	87,301
Nitrate of soda	Tons.	6,746	4,051
Tallow and stearine	Cwt.	90,920	149,968
Tin	Cwt.	46,839	48,134

EXPORTS OF BRITISH AND IRISH MANUFACTURES.

		Quantities.	
		1892.	1893.
Alkali	Cwt.	519,098	350,743
Cement	Tons.	34,892	32,983
Coal and Coke	Tons.	2,722,199	2,273,061
Copper—all kinds	Cwt.	112,991	98,240
Iron and steel	Tons.	267,603	233,024
Chemical manures	Tons.	29,447	36,765
Oils—seed	Tons.	4,765	4,826
Salt	Tons.	46,547	48,584

EXPORTS OF ALKALI AND BLEACH.

THE following figures, which are taken from the official foreign and colonial statistics of the United Kingdom, give the amount and value of alkali and bleaching materials shipped to the undermentioned countries during the month of August, 1893, as compared with the same month in 1892:—

ALKALI.

Port.	1892.	1893.	1892.	1893.
	Cwts.	Cwts.	£	£
Russia	17,759	41,429	7,645	16,386
Sweden and Norway	7,957	15,317	2,542	3,947
Germany	9,984	15,908	4,219	6,858
Holland	6,841	8,294	2,284	2,105
France	1,920	4,226	824	1,654
Spain and Canaries	19,645	19,559	9,591	8,799
Italy	19,882	20,808	8,428	7,931
United States	301,016	219,595	97,878	62,655
Australasia	21,146	8,323	7,661	3,357
British North America ..	18,251	17,942	5,066	5,988
Other countries	75,827	75,633	29,336	27,652
Total	500,228	447,034	176,474	147,332

BLEACHING POWDER, ETC.

Port.	1892.	1893.	1892.	1893.
	Cwts.	Cwts.	£	£
United States	81,808	45,985	33,578	19,440
Other countries	68,816	41,065	26,229	16,341
Total	150,624	87,050	59,807	35,781

AN OBNOXIOUS PLANT.—It is said that no sort of bird, beast, or creeping thing will touch a castor oil plant. It seems to be a rank poison to all the animal world. Even a goat will starve before biting off a leaf, and a horse will sniff at it and turn up his upper lip as though it had the most detestable odour on the face of the earth. There is no surer way to drive moles away from a lawn than to plant a few castor beans here and there, nor to keep flies and wasps out of a room than to have a plant there.

Our Book Shelf.

INORGANIC CHEMISTRY FOR BEGINNERS, by Sir H. Roscoe and J. Lunt. 239 p. 2., with index and appendix. 108 illustrations in the text. London: MacMillan and Co., 1893 2s. 6d

This book is an amplification of certain portions of Roscoe's "Elementary Lessons in Chemistry," which was based upon the requirements of the Science and Art Department. In the present work the ground covered is confined to a portion of the non-metallic elements only. Greater attention, however, is given to the elementary principles of chemistry, or what may be called chemical philosophy, and physical chemistry.

The book is divided into two parts. The first part deals with the principles, and the second with the systematic study of certain elements and their compounds. Mention should be made of the number and quality of the illustrations, which are very good throughout. This work is admirably adapted to the requirements of science teachers, each lesson being supplemented with a summary of "what we have learnt" and a list of about ten questions relevant to the lesson. We notice that in the table of elements the exact atomic weights are given in lieu of the figures usually accepted. Seeing that the book is one for beginners, and that the authors themselves, speaking of the determination of the atomic weights, are of opinion that "all the minute precautions and all the abstruse considerations which are taken into account in finding them cannot be entered into," this superabundant accuracy seems hardly called for. At any rate, it is not maintained throughout the book, for the promiscuous use of the terms, carbonic acid, carbonic acid gas for carbon dioxide, is *en evidence*, despite the fact that the old nomenclature is not an unfrequent source of confusion with carbonic oxide to young students.

In the second part the treatment of several of the elements is worthy of much commendation. In oxygen, in addition to the usual methods of preparation, simple reference is made to its manufacture from barium dioxide, and timely explanation is given of the relative value of the terms, "supporter of combustion" and "combustible body." Ozone, again, is treated in such a way as to leave a clear impression of its genuine properties and composition upon the mind of a beginner even. The ozoniser shown in the illustration is, we notice, a laboratory adaptation of Siemens's and Halske's tube. In water and its preparation in a pure state, there are several interesting departures from the customary path pursued in most elementary text books. There is one anomaly in this part of the book, and that is the statement concerning the composition of bleaching powder and its formula. The old and virtually exploded explanation is set forth in all its pristine bareness, without any reference to any possibility of there being two opinions on the matter. It is a singular and perhaps unfortunate coincidence for students working for the Science and Art Examinations that the opinion held by the present examiner to the Department is diametrically opposed to the views which are here propounded.

The illustration of the apparatus for laboratory demonstration of the manufacture of sulphuric acid on a large scale is a pleasing departure from the ordinary run, and enables the action of the nitric oxide as an oxygen carrier to be easily and clearly shown. We notice no mention is made of Fluorine, though it has lately sprung into such prominence; but it is quite conceivable that the matter was considered beyond the sphere of a beginner's work.

Altogether, the book is well printed and got up, and constitutes an excellent and modernised text-book for beginners, which will be found highly useful to both student and teacher, and should gain equal favour with both.

THE RIBBLE JOINT COMMITTEE.

A Meeting of this Committee was held at Preston on Monday under the presidency of Sir J. T. Hibbert, M.P. The Chairman at the outset apologised for having been an absentee to such an extent. He was desirous to keep in touch with the Committee, and was very glad to find that the Committee was making considerable progress. At the same time he thought that still greater progress was required, and he had no doubt that acting on the principles which they had laid down they would be able most successfully to carry out the work which they had undertaken.—The Clerk stated that the report of the Chemical Sub-committee had been printed and circulated amongst the members. —Mr. Lightbown moved that the report be accepted. When the Chemical Sub-committee was appointed last year Mr. Naylor presented the report, which, he was bound to say, was very greatly to Mr. Naylor's credit, and of considerable assistance to the Sub-committee. Copies of that report were sent to every manufacturer polluting the stream. Meetings were held with the papermakers and with the bleachers, calico printers, and dyers, who were asked to appoint sub-

committees to treat with the Chemical Sub-committee and come to an arrangement. The bleachers, calico printers, and dyers appointed a very influential sub-committee and an able lawyer as secretary and legal adviser. At the first meeting they presented to the Chemical Sub-committee a scheme based broadly on Mr. Naylor's report, and meeting very fairly and fully the views of the Sub-committee. There were, however, one or two points in which they considered the Chemical Sub-committee, acting on Mr. Naylor's advice, were asking more from them than the Mersey and Irwell Committee, under the advice of Sir Henry Roscoe. In consequence of that and other objections raised by chemists in the trade, a further adjournment was recommended so that Mr. Naylor and the Sub-committee might further consider the questions raised. The adjourned meeting took place on Monday the 2nd inst. It was then found that the views Mr. Naylor had expressed were exactly in accordance with the principle on which the Mersey and Irwell Committee were working. That fact was admitted by the calico printers' sub-committee, who also frankly admitted their responsibility, and laid before the Chemical Sub-committee the very great difficulties under which they laboured. They also asked for as long a time as could consistently be granted to carry out and complete the necessary works. The Chemical Sub-committee suggested six months, but after hearing evidence on this point they did not think 12 months was too long to allow for completion of the necessary purifying plant.—With regard to the paper-makers, Mr. Lightbown continued, it was to him a matter of intense disappointment and regret that they had been unable to come to terms. The pollution arising from paper-making was very great, and the difficulties in the way of manufacturers considerable. This, taken in conjunction with the facts that during the past few years the trade had not been particularly profitable, and up to the present no purification plant of such a scale as would be required had been put into operation, was probably the reason why the committee of the paper-makers came before them with a simple plea for the continued postponement. It appeared that one of the members of the paper-makers' committee held a strong opinion that local authorities could be forced to take the effluent from manufactories, and he considered that the question should be postponed until the point was tried. This, however, being entirely a dispute between the paper-makers and the local authorities, could not be considered as a final solution with the Ribble Committee. The Chemical Sub-committee had no alternative left but to ask that reports should be made as to the effluents from each place, and that upon those reports the committee should take action according to the varying circumstances.—The report of the Chemical Sub-committee was adopted.—After discussion it was agreed that application be made to the Court to adjourn the summons against Darwen for six months.—Adjournments were also granted to a number of other local authorities.

THE NITRATE INDUSTRY.

SPEAKING of the increased feelings of dislike to the operations of foreign capitalists in Chili, a correspondent writing to the *Times* says:—It is unfortunately too true that the feeling against foreigners and foreign institutions is shared by people of all classes, and I think the best proof is that both Chambers of Congress have issued a commission to "study the convenience of dictating laws to regulate the position of the nitrate business in its relations to the State, to determine the taxes to be paid by foreign commercial institutions, and the guarantees which should be given by those who represent such companies as have no capital placed in Chili."

Senor Luis Aldunate, one of the leading men in Santiago, in speaking of the nitrate business in a pamphlet called "Our Observatory," published in April last, says:—

"We hold the highest idea of the equity and justice of the international policy of the great Powers with whom we cultivate friendly commercial relations. Nevertheless, we must say with all frankness it is not prudent, but, on the contrary, it is very dangerous, that we should permit the interests of a foreign monopoly to grow and increase without measure on riches so coveted and great as those enclosed in the limits of our sovereignty."

The fact is the Chilians do not understand how it can suit the country to allow foreigners to carry on business and make money which they take out of the country, and they really look upon every cent in the shape of profit so sent away as almost a robbery.

There are, of course, many intelligent men in the country who do not approve of such ideas; but they, unfortunately, are in the minority and will not take the trouble to correct them nor run the risk of being called unpatriotic for taking the part of the foreigner.

In drawing attention to these matters I do not wish to injure Chili in any way; on the contrary, it is my earnest desire to do all in my power to help the country, and I think it will do good to let the Chilians see that any undue interference with foreign business and all hostility to foreigners and foreign institutions will be very prejudicial to their true interests.

THE GAS SUPPLY OF LONDON.

THE quality of the gas supplied to the City of London for the week ending September 23rd, 1893, was fairly good. According to the report of Mr. W. J. Dibdin, chemist and superintendent gas examiner to the London County Council, the tests made at the various testing stations showed four deficiencies in illuminating power, all of which were against the Gas Light and Coke Co. The following figures have been prepared from the report, and show the average composition of the gas calculated on the mean test:—

Company.	No. of districts tested.	Illuminating power (in stand. sperm candles).	Sulphur. Grains in 100 cb. ft.	Ammonia. Grains in 100 cb. ft.	Sulphuretted hydrogen.
		Mean average.	Mean average.	Mean average.	
Gas Light and Coke Co.	14	16'35	9'50	0'32	Nil.
South Metropolitan Gas Co.	6	16'61	10'45	0'58	Nil.
Commercial Gas Co. ..	2	16'35	7'20	0'45	Nil.

The supply for the week ending September 30th was also fairly good. There were three deficiencies, all against the Gas Light and Coke Co. The results, calculated as above, were:—

Company.	No. of districts tested.	Illuminating power (in stand. sperm candles).	Sulphur. Grains in 100 cb. ft.	Ammonia. Grains in 100 cb. ft.	Sulphuretted hydrogen.
		Mean average.	Mean average.	Mean average.	
Gas Light and Coke Co.	13	16'37	9'41	0'29	Nil.
South Metropolitan Gas Co.	6	16'65	10'03	0'50	Nil.
Commercial Gas Co. ..	2	16'40	8'00	0'55	Nil.

The standard gas supplied by these companies should have an illuminating power of 16 sperm candles, and contain not more than 22 grains of sulphur and 4 grains of ammonia per 100 cub. ft. of gas, on an average of three days, with a pressure of one inch between sunset and midnight, and six-tenths of an inch between midnight and sunset.

EXAMINATION OF BROWN MINERAL OILS.

THE simplest method of examining mineral oils is the following:—

1. About 2 c.c. of the suspected oil is mixed in a test tube with an equal volume of petroleum spirit and twice its volume (4 c.c.) of distilled water. The mixture is shaken vigorously, and then allowed to stand. *a.* If the mineral oil be pure, the liquids soon separate, two layers about equal in volume to one another, form in the course of a few hours. But the same may also take place if the oil has been adulterated with rosin oil. The common surface of the two liquids may possibly be turbid after a few hours, but this turbidity will scarcely be more than 5 mm. deep. *b.* If the mineral oil contains organic fats, three layers will form, which will change their volume in the course of three to four hours. The lowest aqueous layer is very turbid, the uppermost oily and somewhat transparent, the middle one consists of a milk emulsion. If the upper layer be also milky, some adulterant of a soapy nature, such as sulph-oleate must be present.

2. If the mineral oil solution separates into two layers as in 1 *a.*, the upper oily and the lower watery, the oil may be pure or it may be adulterated with rosin oil. To detect the rosin oil the mixture of 2 c.c. of the mineral oil, 2 c.c. of petroleum spirit, and 4 c.c. water must be shaken vigorously with 1 c.c. of a 10 per cent. solution of ammonium hydrate. *a.* If the liquid then separates into two layers in an hour or two, of which the upper layer is oily and practically clear and transparent, whilst the lower aqueous layer shows no signs of being milky, the oil is pure. *b.* If on the other hand the liquid separates into two or even three layers, of which one or all have a milky appearance after 5 to 10 hours, the oil has been adulterated with rosin oil.

3. The fatty oils in the mineral oil may be saponified with soda or potash by heating with a 60 per cent. solution of alcohol, dissolving in more of the same, evaporating the solution, and decomposing it with dilute sulphuric or hydrochloric acid. The fatty acids may then be filtered off through a moist filter.

4. To separate and estimate the rosin oil, the mineral oil must be extracted with 80 to 90 per cent. alcohol, at 25° to 30° C. At this lukewarm temperature, twenty parts of this alcohol will dissolve one part of rosin oil. By evaporating the alcoholic solution, the rosin oil will be obtained, and be found to have a specific gravity of 0.950 to 0.980, or rarely even higher. The nature of the rosin oil may be determined by various tests.

Correspondence.

* * We do not hold ourselves responsible for the opinions expressed by our correspondents.

BREAKING STRAIN.

(To the Editor of *The Chemical Trade Journal*.)

DEAR SIR,—In reply to the query of "W.H.H." in your issue last week in reference to the breaking strain of a cast-iron beam, pleased to be able to give him the following information:—

The breaking strain and safe-load for a cast-iron beam of 1 1/2 inch metal throughout 8 inches deep, flanges 8 inches supported at each end with 5 feet between the supports is as under. With an equally distributed load the breaking strain equals 84 tons, and the equally distributed safe dead load is 14 tons. With a point load in the centre the breaking strain equals 42 tons, and the safe load in the centre equals 7 tons. From this it will be seen that the breaking strain is taken as the safe-load, and this never be exceeded with cast-iron girders.

Mention might also be made of the fact that the proportions of a beam mentioned by your correspondent are unusual, as the area of top flange of a cast-iron girder is usually only one-sixth that of the bottom flange.—Yours, etc,
CRANK.

Manchester, 9th October, 1893.

ANSWERS TO CORRESPONDENTS.

C. E.—Thanks for notification.

J. H.—We are surprised, certainly; beyond that we have nothing further to say.

J. C. O.—We should recommend the manual published by Charles Griffin and Sons.

J. L. (Junior).—We trust the information will meet your requirements. We give you further particulars if necessary.

E. A.—They have been returned. Seven in all.

S. H. S.—Nos. 296 and 306 of this *Journal* will contain what you want.

E. W. H.—We have not received any further communication as yet.

J. A.—We trust the surplus was safely received.

C. T. R.—We thank you for your intentions in connection with future information.

P. E. Co.—There are only three that we know of, and they are almost identical in principle.

H. F.—We do not know their name. The agents are Messrs. H. Funck & Co., 27, Palmerstone Buildings, Bishopsgate, St. Within.

THE POLLUTION OF THE MERSEY.

Last week we gave the magistrates' decisions in the sum brought by the Upper Mersey Conservators against the Alkali Company, at the Widnes Petty Sessions for polluting the River Mersey. Mr. Eustace Carey, Secretary of the Conservators, appeared for the United Alkali Company. Mr. Walton, Q.C., appeared for the United Alkali Company. Mr. Carver for the Conservators. The hearing occupied two days.

In opening his case Mr. Carver said the matter of which the Conservators complained was the emission of refuse into the Brook which flows into the Mersey from two of the Colliery works, formerly known as the works of Messrs. Golding Day & Co. and Messrs. Hall Bros. and Shaw.

For some three years the works of Messrs. Golding Day & Co. have been occupied recovering sulphur from alkali waste by a process, the residue from which process was carbonate of lime and other substances.

The practice of these works had been to allow this solid matter to deposit in tanks, whence it was carried away and tipped on the bank but about the spring of last year the solid matter was kept suspended by artificial means, long enough to be flushed through a shoot into Marsh brook, into which the defendants had the right to draw brook had a considerable fall, and hundreds of tons, nay thousands, of this stuff flowed into the estuary of the Mersey. This infringement of the statute 54 George III., chap. 150, called for the Better Regulation of Ports, Harbours, roadsteads, lakes, channels, navigable rivers, &c., in the United Kingdom. So provided that if any earth, rubbish, rack or filth be emptied into such ports, navigable rivers, &c., "so as to tend to the obstruction of the navigation thereof, or in any place or situation, where the same shall be liable to be washed into the sea by any such ports, roadsteads, havens, navigable rivers, either by high tides by storms, or land floods shall pay for each such a sum not exceeding £10." The learned counsel argued that the clause constituted two direct offences—in the one case it was that the rubbish or refuse should tend to obstruct the navigation in the other the offence was created by merely placing it in

situation where it was liable to be washed into the sea or tidal river. The United Alkali Co. had offended in both respects.

Evidence was given by Lieutenant Simpson as to the pollution and the taking of samples.

Francis Henry Tate, analytical chemist, of Liverpool, spoke to the analysis of the liquids taken from the outfall at the works which contained 25.15 per cent. of solid matter or 24,584 grains per gallon. In the second deposit from the same place there was 11.70 per cent. of solid matter in suspension and 8.21 per cent. in solution. This sample was coming out rapidly and was warm. The sample taken from the outfall into the river showed solid matter in suspension 3.52, and in solution 4.40. At that point the deposit had become mixed with the water of the brook. The principal matter in suspension was carbonate of lime and the solid matter in the deposit at the works was the same substance. In the sample taken in the brook at the junction with the river, he found 19 per cent. of carbonate of lime, and 11 per cent. of carbonic acid, besides a quantity of oxide of iron. In the solid matter taken at the output from the works he found 25 per cent. of carbonate of lime and 12 per cent. of carbonic acid.—Cross examined witness said carbonate of lime was soluble in sea water to a small extent, and this would depend upon the amount of carbonic acid in the sea to dissolve all the waste from the Widnes works. He would expect to find a quantity deposited on the banks of the river. In re-examination witness said carbonate of lime was frequently found in sand and he had himself examined sand from the Mersey and found carbonate of lime in it.

Mr. Walton, for the defence, said the deposits of alkali waste at Widnes had been a great source of nuisance, as they evolved sulphuretted hydrogen gas. The Chance process, however, having been invented by which sulphur could be extracted at a profit, the process had been made compulsory by the authorities. The refuse or mud from the Chance process was precipitated carbonate of lime, and being precipitated was in extremely fine particles, and mixed with water it would flow away. It was drained away into the brook and thence into the river without difficulty. He contended that this was no offence against the section of the Act of Parliament relied upon. He contended that this waste was not rubbish within the meaning of the section, which was to prevent the deposit of solid things, whereas this mud was an insipid substance that would flow down the Mersey into the sea. It was idle to argue that this substance would tend to the obstruction of the navigation of the river. The defendants had turned thousands of tons of this stuff into the Mersey, and they might expect it to have formed banks in the river somewhere, but the tidal capacity of the river was equal to its capacity twenty years ago, and he would call evidence to show that there was as much carbonate of lime in the river Wye, at the Isle of Man, or at Southport as there was in the Mersey in the neighbourhood of this brook. Compared with the hundreds of thousands of tons of solid matter sent into the river from Warrington, Garston, Liverpool, Birkenhead, and other places by sewerage schemes and from manufactories, the liquid mud sent in from these works was absolutely insignificant.

The chief witness for the defence was Dr. Ferdinand Hurter, who explained in detail the Chance process, and said that between 87 and 89 per cent. of the residue was carbonate of lime, 2 per cent. of it was coke, and 0.56 per cent. of it was sand. The carbonate of lime was in very small particles, and, taking the very lowest figures, he had found that the flow of the river at Widnes was 300,000,000 cubic feet per day. The amount of absolutely dry solid matter put into the river each day was 81 tons, and this was 1-1,600th part of the quantity moved about by the tide during the same period. On the 5th September witness took several surface samples of the solids in suspension found in the water above Runcorn Bridge. These solids dried at 100°C. contained 9½ per cent. of carbonate of lime. Witness then detailed the result of his analysis of sand at Hale Head, Grassendale, and other parts of the river, and showed that the percentages of carbonate of lime were very small. He also showed the Bench how short a time it took for a quantity of carbonate of lime to dissolve in sea water obtained from New Brighton. He said carbonate of lime was found in all rivers. Thirty-five tons of the refuse from the Chance process had been discharged into the river, and of this 87 per cent. was carbonate of lime, and if it were not dissolved by the river water, it must be very widely diffused. Theoretically, there was enough carbonic acid gas in a single tide in the Mersey to dissolve 7,440 tons of carbonate of lime, if it were thoroughly diffused, but practically, it was probable that only half of this quantity would be dissolved.

Cross-examined: All the ingredients of "Chance mud" were soluble except coke and sand. The percentage of these ingredients was about 4 per cent., and if 500 tons of the mud was put into the river, witness admitted that 20 tons of it would not be dissolved.

The Bench then retired. On returning, the Chairman said they did not think the pollution tended to injure or obstruct the navigation of the river, and dismissed the two summonses on that allegation with costs. The defendants were fined £10. in each of the three cases for polluting the Marsh Brook.

Mr. Carver said he should appeal.

Trade Notes.

PERSONAL.—Captain Abney, F.R.S., (late) Royal Engineers, has been appointed Director for Science in the Science and Art Department.

OBITUARY.—The death is announced, at Harrogate, of Mr. Robert Heath, of Biddulph Grange, Stoke-on-Trent, founder of the firm of Messrs. Robert Heath and Son, colliery proprietors and ironmasters in the Biddulph Valley, North Staffordshire. Mr. Heath was the eldest son of Mr. Robert Heath, of Kidsgrove.

ALUMINIUM ALLOYS.—An alloy of aluminium of exceeding hardness is made by alloying iron or steel, aluminium and copper together. The iron or steel, which should be in excess, is first melted, and the copper and aluminium added. The alloy so obtained is exceedingly hard, and useful for making cutting tools, glass cutters, etc.

COAL FROM AMERICA.—The Americans have entered into competition for the coal trade of this country. A freight circular issued to shipowners and merchants contains particulars of the chartering of a steamer at Philadelphia to carry coals to London, the rate of freight quoted being 12s 6d. per ton. Such a circumstance is absolutely unprecedented in the trade.

A LAW SUIT EXTRAORDINARY.—Miss Alice Lewis, of Jersey City, U.S.A., whose mother, Mrs. Ann Lewis, died after eating crabs, has begun a suit against the West Bergen Chemical-works for £1,000. damages. Her claim is that the crabs were made poisonous by the solutions drained from the chemical-works into Newark Bay, in which the crabs were caught. Three others who partook of the crabs with Mrs. Lewis died after the feast.

OIL FUEL INSTEAD OF COAL.—The prolongation of the coal stoppage and the serious effect it has had upon the cotton industry has led to active experimenting to find a fresh motive power, and on Tuesday last Messrs. Burgess and Company recommenced industrial operations at their Wardley Mills, Walkden, oil being substituted for coal. The preliminary trials have been satisfactory, and a great deal of interest is taken in the experiment by master cotton spinners.

FUSING GLASSMAKING "GRIT."—A patented process, devised by Professor Vivian B. Lewes, for increasing the rapidity of the fusion of grit in the melting pot in the manufacture of glass, consists in adding carbonaceous matter, such as wood charcoal, to the grit. The combustion of the charcoal is accomplished by supplying air or oxygen to the melting pot, through refractory pipes, or by substituting an alkaline nitrate for part of the carbonated alkali usually employed.

A NEW CHEMISTRY.—The St. Louis Republic is not as well posted on matters chemical as it might be, as witness this gem of information:—"The diluted prussic acid is composed of ferro-cyanide of potash, sulphuric acid, alcohol and water. The proportions are about 2 per cent. acid and 98 per cent. water, alcohol and sulphuric acid. It is this enormous proportion of water which gives to it the name of hydrocyanic, which signifies nearly all water."—*Pharm. Era.*

SCHNEBELITE.—This new explosive to which reference was made in these columns a week or so since, is, according to the specification of the English patent, composed of a mixture of potassium chlorate, cellulose, and starch. The cellulose is preferably the pith of the elder tree, the stalks of Jerusalem artichokes, wood sawdust or oak bark. The combined employment of cellulose and starch can be replaced by farinaceous vegetable matter, such as rice, potatoes, or haricot beans.

A FORTUNE IN A SEWER.—Ex-Bailie Walls, of Glasgow, who has just died, found his fortune in a sewer. Years ago he had a sperm oil refinery, the waste products of which ran into a drain. On one occasion when the drain was opened it was discovered that chemical action between the substances which ran into the drain had produced an artificial spermaceti for which there was a great demand. So the worthy bailie speedily grew rich from that which had been aforesaid rejected as useless.

NITROCELLULOSE.—A patented process for nitrating cellulose consists in first producing hydro- or oxycellulose by subjecting air dried rags or bleached fibres to the action of hydrochloric acid gas in a closed chamber, after which the rags or fibres are washed free from acid by means of water, and then dried and dissolved in concentrated nitric acid to form a clear gummy solution. Compounds of various degrees of nitration can be obtained from this solution by precipitating with water to obtain the nitrates and with sulphuric acid to obtain the higher nitrates.

REFINING OILS.—Ochres such as hematite or limonite are suggested according to a recent patent, for refining vegetable oils such as cottonseed and linseed. The dried ochre is agitated with the oil and the refined oil separated by filtering or other means. The ochre can, if desirable, be formed in the oil by adding chloride of iron and chloride of calcium or aluminium, and soda ash to the oil, the salt formed being

removed by washing. In some cases it may be desirable to use small quantities of caustic soda or borate of soda and calcium chloride in conjunction with the ochre.

THE SALFORD SEWAGE EXPERIMENTS.—At the last meeting of the Salford Corporation Councillor Snape asked when they would have a final report on the costly experiments which had been so long in progress at the sewage works. The Council, he said, were getting weary of waiting. Alderman Walmsley, Chairman of the River Irwell Conservancy Committee, replied that Mr. Carter Bell, the analyst, presented a report about six weeks ago, but that report required considerable modification. The Committee were making certain experiments for themselves, and when these had been got through, the complete report would be issued. The report would probably be ready in two or three months.

THE MANCHESTER SEWAGE WORKS.—Mr. Alderman Thompson, in moving the adoption of the proceedings of the Rivers' Committee, made the interesting announcement that the mechanical arrangements of the new sewage works were going on satisfactorily, and that the sewage of the city from an area of 451½ acres had been diverted and was now discharged at the storm overflow at Mode Wheel. It was hoped also, Mr. Thompson added, that before the year was out they would be able to treat the sewage of the city by purification. Mr. Thompson, in conclusion, referred to the long and serious illness of the city surveyor, and bore emphatic testimony to the valuable services rendered by Mr. Alderman Hopkinson and Mr. Councillor Worthington in Mr. Allison's enforced absence from duty.

MANUFACTURE OF CHEMICAL APPARATUS IN GERMANY.—The manufacture of glass chemical apparatus for laboratories is very largely carried on in the Thuringer district of Germany. From the works of this district, the largest portion of the home demand for all glass apparatus and instruments is supplied, and also a large part of the demand in foreign countries. These products are, in part, directly the work of the factories, and, in part, made before the glass-blower's lamp. In some districts of Thuringer, almost the entire population is engaged in the glass industry. About a million glass-instruments and three million pieces of glass-apparatus are made yearly in Thuringer. The finishing of the finer grades of glass-apparatus, as, for instance, instruments for metrological purposes, is carried on in special workshops. As well as in other places, important establishments of this kind exist in Berlin, Bonn, Heidelberg, and Cologne.

"THE PROGRESS OF ORGANIC CHEMISTRY."—This was the title of a lecture delivered by Dr. W. H. Perkin, jun., F.R.S., professor of organic chemistry at Owens College, at the opening of the science department last week. In his lecture he described the progress made in chemical science during the last twenty-five years, and pointed out various directions in which organic chemistry might be expected to advance in the future. Inasmuch as the greater part of the progress hitherto attained was due to German chemists who had produced far more original work than their rivals in other countries, he trusted that in the future England would achieve a larger degree of distinction in this field of science. As a means towards that end he strongly urged the expediency of the student being required to devote himself to one or two years' original investigation. He pointed out that in Germany the great chemical manufacturers made it part of their business to have the services of a trained chemist, and remarked that the success attending this system had been so great that even in this country the necessity of employing a highly skilled chemist in chemical works was being realised more and more.

THE USE OF NATURAL GAS FOR CHEMICAL WORK.—In a note to the Chemical Section of the Engineers' Society of Western Pennsylvania, Dr. F. C. Phillips says: "Besides its use in agitating a liquid, natural gas forms a convenient substitute for carbon dioxide or nitrogen in many cases where an inert gas is necessary. In drying substances liable to oxidation if exposed to air, I have often used a natural gas stream. The substance to be dried can be placed in a flask which is heated over a water bath and gas passed slowly through the flask. As natural gas does not exert any reducing action at moderate temperatures, it is usually quite as well suited for such a purpose as pure nitrogen. It is a common practice in distilling organic liquids of high boiling point to send a current of steam through the still to expel the heavy vapors and hasten the distillation. I have found that natural gas serves better than steam, and it is, of course, much more easily controlled. "Sulphur compounds may, and probably do, occur in natural gas, but in such small quantity that ordinary reagents fail to give any indications even when several hundred cubic feet of gas are used. With the increase in heavy hydrocarbons that has been observed during the past two years, it is probable there has been a somewhat greater proportion of sulphur compounds. Whether this is a coincidence or not I cannot say."

MATCHES IN SIAM.—As pretty nearly everybody in Siam of the age of four years and upwards smokes cigarettes, the consumption of

matches is considerable, though the old flint and tinder are still to be found in out-of-the-way places. The import in 1892 was 11,972 cases, equivalent to 86,198,400 boxes, an increase of 1,815 cases on 1891. The Japanese match is now unrivalled in the market for cheapness and quality, and has driven out the Swedish match, itself a marvel of cheapness. Ten boxes of matches may now be bought in Bangkok for three alts (one penny). English matches are unknown there, and the trade is almost entirely in the hands of Chinese. The consumption of matches may have been greater than it would otherwise have been, on account of a curious mania for collecting match labels, which was prevalent for some time, recently amongst the upper classes of Siamese, but which, like other crazes, has had its day. Match labels were even made a means of exciting the gambling spirit so innate in the Indo-Chinese character. Guests at evening parties bringing with them their collections of labels ventured large sums on the wager that the labels held by them were unique, and that nothing similar could be shown by anyone present.

MANUFACTURERS AND RIVER POLLUTION.

LOCAL GOVERNMENT BOARD INQUIRY.

MESSRS. KERR AND HOEGGER.

On Saturday, 30th ult., an inquiry was held at 44, Mosley-street, Manchester, by Mr. R. Walton, Local Government Inspector, with reference to an application by the Mersey and Irwell Joint Committee for consent to take proceedings against Messrs. Kerr and Hoegger, dyers, &c., Newton Heath, in respect of an offence alleged to have been committed by them under the Mersey and Irwell Joint Committee Act, 1892. Mr. Sutton appeared for the Committee, and Mr. G. Fox, solicitor, represented the defendants.—Mr. Sutton said the defendants did not deny that they had committed an offence against the Act, and the only question, therefore, was as to the works they ought to carry out to prevent any nuisance for the future. They had expressed their willingness to carry out works, and the only reason why the Committee asked for an order against defendants was that they felt they ought to be in a position to secure that the works should be carried out satisfactorily according to their views, and if there was any dispute between them whether the works were satisfactory or not to take the matter before the justices, who were to be the final judges as to the sufficiency of works. The usual course of procedure had been adopted in the case of the defendants. Sir Henry Roscoe's report had been sent to them with a request to carry out works within six months, but no works had resulted. The Committee then requested the attendance of a member of the firm before them, and Mr. Kerr came.—Mr. Fox observed that the only question was as to the nature of the works. They were perfectly willing to carry out works. It was Mr. Kerr who had made the mistake.—Mr. Sutton, continuing, said that when before the Committee, on September 18th, Mr. Kerr declined to give a promise to complete works in three months or to enter into any definite undertaking. It was not fair either to the Local Government Board or the Committee that gentlemen, when they knew they were in default, should oblige inquiries to be held; and he asked the inspector to take this into consideration when determining the question of costs. In the present case the Committee were not satisfied that the works proposed to be carried out would sufficiently comply with the requirements of the Act or that they were the best practicable and available means to render innocuous the effluent from the works. Evidence on behalf of the Committee was given by Mr. R. A. Tatton, chief inspector; Mr. Maguire, sub-inspector; and Mr. Scudder, chief assistant to Sir Henry Roscoe. The effluent, it was stated, was running into a brook, which communicated with the Medlock, a tributary of the Irwell. No means were at present taken to purify the effluent, and the Committee's experts were not satisfied with the plans submitted by defendants for the construction of settling tanks. Mr. Scudder gave the analysis of the effluent. It contained, he said, 351 grains of solids per gallon, and of the total solids 62 per cent. were in suspension. This was a very high percentage. The liquid was discharged in a condition likely to lead to decomposition, and matter in putrefaction was poisonous. He did not think there was any difficulty in carrying out efficient works. Dr. Adolph Lielmann, the defendant's consulting chemist, was called for the defence, and expressed the opinion that the plans produced by the defendants represented a satisfactory scheme. Mr. Fox repeated that the defendants were prepared to do all that was necessary to purify the effluent. He contended that they should be allowed three months, that term having been granted to others. Mr. Sutton said he was prepared to accept an order authorising prosecution with the condition that prosecution should not take place within three months. He, however, pressed that an order should be granted. The inquiry then ended.

Market Reports.

TAR AND AMMONIA PRODUCTS.

The tar products market is reported to be in a better state, though how this has come about—except it be a temporary disturbance caused by the coal strike—it is difficult to tell. Gas tar is quoted as being worth 9s. per ton f.o.b., pitch 27s., solvent naphtha 1s. 2d. to 1s. 3d., toluol 1s. 7d., creosote 2d., while crude carbolic acid is selling at 1s. 4d. for 60's. Anthracene is quoted at 1s. to 1s. 1d. for 30% A, and 9d. for 30% B. Benzol is quoted at 1s. 6d.

The sulphate of ammonia market has become very steady, at all events as far as October delivery is concerned, and the low quotations are fast disappearing. Values are not perceptibly better, although £13. 1s. 3d. has been paid for immediate parcels. Some business has, however, been done at low prices for future delivery, but the transactions are entirely speculative, makers at present abstaining from making forward offers. Stocks are exceedingly small everywhere, and in the event of a sudden sharp demand, a hardening of prices would be inevitable.

MISCELLANEOUS CHEMICAL MARKET.

The prices generally of alkalis are irregular, and quotations depend entirely upon the position of sellers in regard to fuel. In all cases a considerable advance in price is required for near deliveries, and stocks are now greatly reduced. For caustic soda, f.o.b. Liverpool, the prices ruling on the spot are: 74%, £12. 5s.; 70%, £11. 5s.; 60%, £10. 5s.; and f.o.b. Tyne, 77%, £12. 10s. per ton. Soda ash varies from 1d. to 1½d. per degree for various grades of Leblanc make. Ammonia alkali, 58%, £3 15s. per ton, in bags, f.o.r. makers' works. For bicarbonate of soda the price remains firm at £7. f.o.b. Soda crystals without change at £2. 17s. 6d. to £3. per ton, makers' works. The quotation for bleaching powder is still £8. 10s. nett, f.o.r., and supplies are obtainable to cover current requirements. Recovered sulphur £4. per ton, f.o.r. Vitriol and muriatic acids are without material change, but in some districts the supply has been limited, owing to curtailment of supplies of salt and fuel. Brown acetate of lime firm at £6. 17s. 6d. to £7. per ton for spot delivery, with a strong upward tendency. Acetic acids are also dearer. Acetates of lead and soda are steady at prices which have been ruling for some time past. Aniline oil and salt are a little higher in price. For white powdered arsenic £13 7s. 6d. to £13. 10s. are the prices paid for prompt and forward delivery. Carbolic acid crystals are slightly lower in price, both for near and forward delivery, but crude and liquid acids are unchanged meantime. Sulphate of copper is firm at £16. f.o.b. For carbonate of potash there is strong demand for near deliveries, and a fair amount of business is in progress for deliveries over 1894. Borax quiet, and low prices still ruling.

REPORT ON MANURE MATERIAL.

Throughout the week the market has been quiet, and prices for the most part remain without alteration.

The nearest value of 75/80% Florida phosphate rock, c.i.f. to good United Kingdom or continental ports, is 8½d. per unit. Peace River and South Carolina River rocks are quoted 7¾d. per unit for prompt or early shipment, but manure makers are bought pretty well ahead, and less would have to be taken to induce important business. Continental descriptions are firmer. The market for River Plate bones is quiet, the nearest closing value being £4. 12s. 6d. per ton for handy cargoes, shipping or shipped. For large cargoes, or for later shipment, something under £4 12s. 6d. would have to be taken. Crushed East Indian bones and bone meal are enquired for, but supplies are scarce, and £4. 15s., ex quay, would have to be cabled out for December-January steamer shipment. Spot is almost bare of supplies, and there is nothing offering afloat.

Nitrate of soda is quiet but fairly steady; spot value of ordinary quality is 9s. 3d. per cwt., and of refined, 9s. 4½d., with very little doing. Due cargoes are worth only about 8s. 11d. per cwt., and September-November sailings 9s. 1½d. to 9s. 3d., according to size and test.

There is nothing to report in miscellaneous nitrogenous material except a large cargo of Liebig's guano at 9s. 6d. per unit ammonia, and 1s. per unit of phosphate of lime to arrive.

THE METAL MARKETS.

LONDON, WEDNESDAY.—Pig iron inactive. Scotch warrants closed at 42s. 3½d. cash, Middlesbrough 34s. 9d. cash, and hematite 44s. 6d. Copper, firmer: Chili bars, G.O.B.'s and G.M.B.'s closed at £41. 15s. to £41. 16s. 3d. cash, and £42 3s. 9d. to £42. 8s. 9d. three months. Tin, quiet: Straits closed at £78. 5s. to £78. 15s. cash, and £78. 15s. to £79. 5s. three months; Australian, £79. 5s.; English ingots, £83. to £83. 10s. Lead, quiet: Spanish, £9. 11s. 3d. to £9. 12s. 6d.; English, £9. 15s. to £9. 17s. 6d. Silesian spelter: Ordinary, £16. 17s. 6d. Nickel, 1s. 8d. Antimony, £38. Quick-silver: First hands, £6. 10s.; second hands, £6 8s. 6d. Copper shares dull: Cape, 1½ to 1¼. Copiapo, 1⅝ to 1⅜. Libiola, 2¼ to 3. Mason and Barry, 1½ to 1¼. Rio Tinto, 13¾ to 13½. Tharsis, 4¾ to 4½.

WOLVERHAMPTON, WEDNESDAY.—To-day's quarterly meeting was entirely disappointing, the result of the continuation of the coal trade dispute. Consumers satisfied themselves with the smallest possible purchases of iron, and any extensive orders were postponed. Marked bars were redeclared at £7. 10s., merchant bars at £6. 10s., and common £5. 17s. 6d. to £6.; sheets, singles £7., doubles £7. 5s.; hoops, £6. 10s.; tube strip, £6 2s. 6d.; Northampton and Derbyshire pigs 45s. to 46s., Lincolns 47s., Staffordshire all-mines 60s., and common 36s. Coal very dear.

LIVERPOOL OIL AND COLOUR MARKET.

WEDNESDAY.

OILS.—Palm oil is firm, and is fetching good prices on spot and to arrive. Spot price is £25. 15s. Olive continues steady, but business is rather limited on spot, prices remaining firm. Linseed, though rather slow of sale, continues firm, and price for Liverpool makes in export casks is still 22s to 22s. 6d. per cwt. Cottonseed is still easier, Liverpool refined selling at 22s 3d. to 23s. 6d. per cwt, but there is not a great quantity on offer. Castor oil is decidedly firm, good seconds Calcutta being worth 2½d to 2¾d. per lb., while arrival prices are still higher. First pressure French being somewhat scarcer, 2¾d. to 2½d. per lb. ex store is now asked. Tallow is virtually without change, owing to scarcity of supply. Resin is steady, and all grades are enjoying a fair inquiry, common being quoted 3s. 9d. per cwt. Spirits of turpentine are in moderate request at the reduction, being offered now at 21s. 6d. per cwt. Petroleum is moving gently at 4¾d. to 5¾d., according to quality, for American, and 4d. per gallon for Russian refined.

COLOURS are steady without alteration in prices. Ochres: Oxfordshire, common, £10., medium, £12., best, £15.; Derbyshire, common, 40s.; medium, 50s., best, 60s.; Welsh, best, 70s., seconds, 50s., and common, 18s.; Irish, Devonshire, 40s. to 45s.; French, J.C., 55s. to 60s.; M.C., 65s. to 67s. 6d. Umber: Turkish quiet; Devonshire, 50s. to 55s. White lead, red lead, and oxide of zinc unchanged. Venetian red, £6. 10s. to £10. Cobalt: Prepared oxide, 9s. 9d.; black, 9s.; blue, 6s. Zaffres: No. 1, 3s. 6d.; No. 2, 2s. 6d. Oxide of iron: Common, £6.; medium, £10.; finest, £20. Zinc oxide, £23. to £25.

WEST OF SCOTLAND CHEMICALS.

GLASGOW, TUESDAY.

The ordinary makes of general chemicals have been very quiet on the whole, but there are one or two features worthy of note. Caustic soda has become still scarcer, and as a consequence its figures are inclined to the rise. Soda crystals, on the contrary, having become more plentiful, tend to the fall. Soda ash is very quiet of demand without change in price. Chlorate of potash is down a farthing, and saltcake has receded to 22s. 6d. Sulphate of ammonia has continued its downward course without any halt, and by the close of last week resellers were accepting £12. 15s. for prompt under a very weak demand. This is practically the price now, but there are a few of both makers and holders who are indisposed to part at that figure and ask up to £13. The mineral oil and paraffin section continues very busy with deliveries under unexhausted contracts, all except the heavier lubricants, and prices are maintained. Scale and wax are both a little firmer if anything.

Chief prices current are:—Soda crystals £2. 12s. 6d. to £2. 15s. nett, Tyne; soda ash £3. 17s. 6d. nett, Tyne; white alkali 48/52° £4. 15s. to £5. 5s. nett, Tyne; alum in lump £5. nett. Glasgow; caustic soda, white, 76°, £12. 5s. 6d., 70/72° £11. 5s., 60/62° £10. and cream 60/62° £10. all nett, Liverpool; bleaching powder £8. 5s. to £8. 15s. nett Tyne; saltcake, 22s. 6d.; borax, English refined, £30., and boracic acid, £37. 10s. nett, Glasgow; bicarbonate of soda, 5-cwt. casks, £6. 15s.,

and 1 cwt. casks £7. less 2½%, Liverpool; bichromate of potash, 4½d. nett, for Scotch and English deliveries (for export, 4¼d. nett f.o.b. Glasgow); bichromate of soda, 3¾d. nett, for Scotch and English deliveries (for export, 3½d. nett, f.o.b. Glasgow); chlorate of potash 8¾d. less 5%, Liverpool; nitrate of soda, 9s. 3d.; sulphate of ammonia, £12. 15s. prompt, f.o.b. Leith; sal ammoniac, first and second white, £37. and £35. less 2½% any port; sulphate of copper, £15. 10s. less 5% Liverpool; paraffin scale, hard and soft, 1¾d. per lb.; paraffin wax 120° semi-refined 2¾d.; paraffin spirit (naphtha) 4½d. a gallon; paraffin oil, burning, standard No. 1 grade, 5d. per gallon at works, for Scotch buyers (English sales ½d. to ¾d. lower); ditto (lubricating) 865° £4. 5s., 885° £4. to £5. 10s., and 890/895° £4. 12s. 6d. to £6. Week's imports of raw sugar at Greenock were 86,091 bags and 7,382 baskets, the heaviest aggregate over a series of years.

HULL PAINT, OIL, AND COLOUR REPORT.

TUESDAY.

OILS.—Business here is much the same as chronicled a week ago—a finish of the coal strike seems to be the most desirable thing. The exports of linseed oil were more than doubled during the week compared with same time a year ago, being 1,338 cwt. against 522 cwt. The exports of cottonseed oil were barely one-third those of last years, the shipments being 1,770 cwt. against 6,808 cwt. An improvement is manifest in the import of tallow. Linseed oil has fluctuated on the spot but little, and closes firm with buyers at 20s. 6d. naked. Forward positions are about 5s. per ton dearer. There are buyers at 19s. 6d. October-December, and January-April are worth 19s. 4½d. to 19s. 6d., casks 17s. 6d., and ordinary barrels 22s. 6d. per ton extra. Refined cotton oil quiet, at 21s. 6d. naked spot. October offers at 20s. 7½d.; for November-April there has been more inquiry, and up to 18s. 3d. has been paid. Crude on the spot, 19s. 3d. naked; new oil for November-April, 16s. 6d. buyers. Refined rape, 24s. 6d. in casks, Coast cod oil—very little offering except re-sales, and is most difficult to buy,—£17. 10s. to £19. per ton. Herring oil, £16 10s. Sod oil, in good demand, £15. to £17. per ton. Pine oil, £7. per ton. Antifiction grease, from £6. Brown-wool grease, £8. Engine oil, 1s. 3d. to 1s. 9d. per gallon. Cylinder oil, from 1s. to 2s. per gallon.

CAKES.—Linseed cakes firm: 95% pure, £8. 15s. to £9.; ordinary, £7. 5s. to £7. 10s. per ton; Americans, £7. 12s. 6d.; Russians, £8. 10s. Cotton cakes strong: Spot at £6. to £6. 2s. 6d. for best makes; November-March, £5. Rape cakes: East India, £4. 15s.; Black Sea, £4. 5s. Feeding cakes, £5. 12s. 6d. per ton.

PAINTS.—This trade continues exceedingly quiet, some firms preferring to put their hands upon short time to paying the present abnormal rates for coal. The exports of both painters' colours, etc., and chemicals each show a decrease compared with same time a year ago. Prices are unchanged. Oxide of zinc, £24. per ton. White and red lead unchanged. Oxide of iron, £9. to £18. Venetian red, dry, £6. to £10. Oak varnish from 6s. per gallon. Common black varnish, £5. 10s. per ton in barrels. Ready mixed paints from 28s.

THE COPPER MARKET.

Messrs. Harrington and Company, in their fortnightly report dated Liverpool, October 3rd, 1893, state: The Chili charters for the past fortnight are not yet to hand, and are estimated as 1,000 tons, which with 700 tons for the previous fortnight makes a total of 1,700 tons for the month, thus making the total since 31st December last 15,350 tons, against 16,800 tons same time last year. Chili Exchange, 15½d.

During the past fortnight the market for G.o.b.'s and G.m.b.'s has been quiet, and sales have not amounted to more than 3,500 tons. The total stocks in Liverpool, Swansea, London, and Havre are 43,704 tons, against 44,553 tons on the 15th ult., showing a decrease of 849 tons for the fortnight. The figures for the previous fortnight showed an increase of 542 tons, thus making a decrease for the month of 307 tons. The stocks include about 3,400 tons of copper sold, but not yet delivered to smelters.

The visible supply for the fortnight is 47,857 tons, against 48,326 tons on the 15th September, showing a decrease of 469 tons. The month's figures show a decrease of 24 tons. The stock of English G.m.b.'s in Liverpool is 7 tons. Refined and manufactured sorts are quiet, quotations being—Tough cake, £45. 10s. to £46; best select, £46. 10s. to £47.; Indian sheets, £52. 10s.; strong sheets, £54. to £55.; and yellow metal sheets, 4½d. per lb. The sales of furnace material comprise—At Liverpool: 112 tons Mexican ore, at 8s. 3d.; 17 tons English precipitate, at 8s. 9d.; 66 tons Italian ore, at 7s. 10½d. per unit; 1,200 tons Argentiferous Montana Matte, for forward shipment, and 61 tons Argentiferous Chili Regulus, on private terms. At Swansea: 200 tons Bratsberg ore, at 8s. 3d. per unit.

TYNE CHEMICAL REPORT.

TUES

In chemicals we have to report a quiet market, the only tion being that soda crystals are reduced to £2. 10. per ton. Caustic, 76/77%, £11. 5s. per ton. Bleach varies from £8 5s. 10s. per ton. Sulphur unchanged at £4. 2s. 6d. per ton.

Bleaching powder, softs, £8. 10s. per ton, nett; hards, £8. 10s. per ton; caustic soda, 76/77%, £11. 15s. per ton, 70%, £10. 5s. per ton; recovered sulphur, 2 cwt. bags, £4. 2s. 6d. per ton; soda 48%, £4. per ton, 52%, £4. 7s. 6d. per ton, 56%, £4. 10s. per ton; alkali, 36%, £3. 15s. per ton; white alkali, 48%, £4. 10s. per ton, 50%, £5. per ton, 52%, £5. 5s. per ton; hyposulphite of 5-7 cwt. casks, £7. per ton, ditto, in 1 cwt. kegs, £7. 15s. per ton; silicate of soda, 75° Tw., £2. 15s. per ton, 100° Tw., £3. 10s. per ton, 140° Tw., £3. 17s. 6d. per ton; soda crystals, in casks, £4. per ton gross weight, in 2 cwt. bags, £2. 10s. per ton; weight; chlorate of potash, 8½d. per lb. less 6%; pearl har £3. per ton nett; pure white sulphate of alumina, £4. 2s. 6d. per ton; blanc fixe, £7. 10s. per ton; chloride of barium, £7. 10s. per ton; carbonate of alumina, £28. 15s. per ton nett; aluminate of £33. 15s. per ton nett; in 5 ton lots, £28. 10s.; hydrate of £10. per ton nett.

South Durham salt, price unchanged at 9s. 6d. per ton f.o.b.

Coals.—Trade to-day is quieter, many buyers holding off in anticipation of an early settlement of the strike in the Midlands, in consequence prices vary much. Quotations at present are as follows Northumbrian steam, 14s. to 15s. per ton; second qualities, 13s. per ton; small steam, 5s. 6d. to 6s. per ton; bunker coals, 9s. 10s. per ton for unscreened Durham. Coke: There is no alternative price steady at 16s. per ton best quality.

New Companies.

Cottrells, Ltd.—CAPITAL £1,000. in shares of £1. each company has been formed to purchase the business hitherto run by W. N. Cottrell at Wolverhampton, and to trade as iron workers and galvanisers.

Molineux, Ltd.—CAPITAL, £1,000. in shares of £1. each company has been formed to take over the business of a druggist, corn and oil merchant, formerly carried on at St. G. Salop, by S. J. Tipton.

Swan and Harrison Smelting Co., Ltd.—CAPITAL, £30, shares of £5. each. This company has been formed to acquire work a smelting works near Carthagena, Spain, and to carry business of miners, assayers and dealers in gold, silver, lead, cupreous ores, etc. The subscribers to the memorandum of association are:—J. C. Swan, St. Nicholas Buildings, Newcastle-on-Tyne and zinc smelter; A. H. Harrison, La Union, Spain, smelting proprietor; H. Smith, 23, Lancaster-road, London, S.E., warehouseman; J. Kennedy, Barrowfield Potteries, Glasgow, ware manufacturer, J. P. Turnbull, Bailiffgate, Alnwick, merchant; G. Green, Jarrow-on-Tyne, metallurgist; T. B. Westoe, South Shields, gentleman; J. W. Swan, Bromley, electrical engineer.

The Patent List.

This list is compiled from Official sources in the Mechanical Laboratory, under the immediate supervision of George E. Davis and Alfred R. Davis, who report upon the value of Chemical Patents.

APPLICATIONS FOR ENGLISH LETTERS PATENT

Electrolytical Production of Gases. P. B. W. Kershaw. 17,080. September 25.
Improvements in Varnish. R. G. Bennett. 18,003. September 25.
Cleaning Tin and Tern Plates. D. Thomas and E. W. Hampton. September 26.
Preventing Scale in Boilers. L. J. Docker. 18,014. September 26.
Improvements connected with the Filtration of Water. R. F. 18,036. September 26.
Improvements in Varnish. R. G. Bennett. 18,047. September 26.
Charging Vessels with Liquefied Gas. I. A. F. Bang. 18,061. September 26.
Smoke Preventing Furnaces. E. Brook. 18,088. September 26.
Disintegrators for Minerals, etc. W. Wilkinson, H. Alexander, and Wallis. 18,094. September 27.
Manufacture of Cyanides, etc. G. T. Beilby. 18,099. September 27.

Manufacture of Alkaline Carbonates and Silicates. J. Reich. 18,139. September 27.
 "Victoria." Extract of Soda. S. E. Mott, G. W. Wort, S. Wort, and E. W. Wort. 18,168. September 27.
 Apparatus for the Electrolysis of Chlorides and other Salts. J. Hargreaves and T. Bird. 18,173. September 27.
 Improvements in the Manufacture of Nitric Acid and Similar Products. H. Morris. 18,192. September 28.
 Manufacture of Ammonia and other Products. G. T. Beilby. 18,194. September 28.
 Fuel Economizing Apparatus. H. W. Cowley. 18,209. September 28.
 Machinery for Mixing Manures. R. Silcock. 18,216. September 28.
 Improvements in the Process of Dyeing. O. P. Amend. 18,232. Sept. 28.
 New Di-azo Dyes. B. Willcox. 18,317. September 29.
 Manufacture of Alkali and Acid. W. G. Johnston. 18,355. September 30.
 Improvements in Electroplating. S. O. Cowper-Coles and Sir E. W. Walker, Bart. 18,363. September 30.
 New Dyes of the Phenanthrene Series. B. Willcox. 18,374. September 30.
 Treating Kauri Gum and the Utilisation of the Bye-Products. B. S. J. Makay. 18,378. September 30.

Gazette Notices.

PARTNERSHIPS DISSOLVED.

F. W. Moss and R. P. Moss, printing ink and varnish manufacturers, Dyer's Buildings, Holborn, E.C., under the style of Blackwell and Co.
 F. THODAY and H. S. THODAY, brick, tile, and cement manufacturers, Cambridge, under the style of Francis Thoday & Son and the Ramsey Town Cement Co.
 A. RANSOM and T. RANSOM, brick and lime manufacturers, Hichin, Herts., under the style of A. and T. Ransom.
 M. DEVANE, W. CROWE, and G. ATKINSON, Liverpool, ink manufacturers and drysalers, under the style of Devane, Crowe, and Co., so far as regards G. Atkinson.
 B. S. JONES and T. S. JONES, coal tar distillers and rectifiers, liquid ammonia and asphalt manufacturers, Wirksworth, Derbyshire, under the style of Shakeshaft Jones Bros.

IMPORTS OF CHEMICAL PRODUCTS

AT

THE PRINCIPAL PORTS OF THE UNITED KINGDOM.

LONDON.

Week ending September 30th.

Acetic Acid—
 Holland, 100 pkgs. Beresford & Co.
 " 100 A. & M. Zimmermann

Alkali—
 France, 110 c. Amati & Harrison

Aluminium—
 Holland, 90 pkgs. R. W. Greeff & Co.

Ammonia (Liquid)—
 Holland, 20 pkgs. Philipps & Graves

Antimony—
 E. Turkey, 101 t. Allatini Bros.
 Sydney, 62 Pillow, Jones, & Co.
 Portugal, 50 J. Bamber
 Corsica, 50 Smith, Sundius, & Co.
 Sydney, 2½ H. Bath & Son

Asbestos—
 U. States, £260 Bolling & Lowe
 Italy, 142 Mory & Co.

Barytes—
 Germany, 38 cks. H. Lambert
 Belgium, 27 A. Zumbach & Co.
 Holland, 54
 " 23 brls. O'Hara & Hoar
 Germany, 57 cks. W. Fenton
 " 19 S. H. Willoughby
 " 19 T. T. Creed
 " 41 Blundell, Spence, & Co.
 Belgium, 43 Burrell & Co.
 " 24 W. Harrison & Co.
 Holland, 11 Thames S. T. & L. Co., Ltd.

Caoutchouc—
 U. States, 78 c. Prop. Bull Wf.
 Madagascar, 5 Procter Bros.
 " 552 Hammond & Co.
 Cape, 19 L. & I. D. Jt. Co.
 E. Indies, 8 "

Castor Oil—
 France, 10 brls. Beresford & Co.

Caustic Potash—
 France, 55 c. Petri Bros.
 " 70 Beresford & Co.
 " 28 pkgs. Spies Bros. & Co.

Caustic Soda—
 Holland, 115 c. Beresford & Co.

Chemicals (otherwise undescribed)
 Germany, 11 pkgs. T. H. Lee
 " 275 F. W. Berk & Co., Ltd.
 " 1 Philipps & Graves
 " 4 L. & I. D. Jt. Co.
 " 108 A. & M. Zimmermann
 Holland, 20 Philipps & Graves
 Belgium, £10 G. Haller & Co.
 Holland, 10 J. Owen
 Germany, 6 Craven & Co.
 " 4 Beresford & Co.

Cream of Tartar—
 Spain, 2 pkgs. L. & I. D. Jt. Co.
 France, 2 F. C. Devon & Co.
 " 15 W. C. Bacon & Co.
 " 2 J. L. Lyon & Co.
 U. States, 20 A. Hughes
 Belgium, 69 Middleton & Co.
 France, 17 B. & F. Wf. Co., Ltd.
 " 3 Ross & Deering
 " 2 H. Johnson & Sons

Dextrine—
 Germany, 50 pkgs. Hernu, Peron, & Co.

Dyestuffs—
Annatto
 France, 22 pkgs. R. J. Fullwood & Co.
Anthracene
 Holland, 73 pkgs. Burt, Boulton, & Co.
Argols
 Germany, 8 pkgs. L. & I. D. Jt. Co.
Cochineal
 Germany, 32 pkgs. W. M. Smith & Sons
 Canaries, 16
 " 9 Swanston & Co.
 " 8 Sperling & Williams
 " 12 Kuhner, Henderson, & Co.
 " 20 Johnson, Hicks, & Co.

Divi Divi
 Kingston, 154 pkgs. Low, Sons, & Bedford

Extracts
 France, 85 pkgs. L. J. Levinstein & Sons
 " 15 B. & F. Wf. Co., Ltd.
 Canada, 40 A. J. Humphrey
 Denmark, 7 J. Sinclair & Son
 U. States, 25 J. Graves
 " 78 W. Balchin
 Holland, 16 brls. R. Baelz & Co.
Fustic
 Jamaica, 133 t. Park, Macfadyen, & Co.

Gambier
 E. Indies, 273 pkgs. Brinkmann & Co.
 309 S. Barrow & Bros., Ltd.

Logwood
 Jamaica, 36 t. Park, Macfadyen, & Co.
 B. Honduras, 35 A. Everingham & Co.

Orchella
 Portugal, 112 pkgs. Prop. Bull Wf.

Shumac
 Italy, 100 pkgs. G. D. Jennings & Co.
 " 400 W. Shelcott
 " 78 Hicks, Nash, & Co.

Tanner's Bark
 Belgium, 52 t. Leach & Co.
 " 15 Arnati & Harrison

Valonia
 A. Turkey, 20 t. A. & W. Neslitt
 " 30 Boucher, Mortimore, & Co.

Farina—
 Holland, 50 pkgs. P. Windmuller Mack
 Germany, 50 Dunlop Bros. & Co.
 Holland, 50 Prop. Chmbln.'s Wf.

French Chalk—
 France, £50 Stobbs, Wilson, & Co.

Glucose—
 U. States, 500 pkgs. 500 c. P. W. Horo & Co.
 " 500 500 c. G. Helges & Son
 " 203 1,140 Prop. Chmbln.'s Wf.
 Germany, 12 105 J. Knill & Co.
 U. States, 250 1,000 L. Norman & Co.

" 500 500 J. Barber & Co.
 " 1,500 1,500 McDougell & Bonthron
 " 400 2,370 Pillow, Jones, & Co.
 " 115 642 Soundy & Sons
 " 199 200 Devitt & Hett
 " 2,450 3,700 R. G. Hall & Co.
 " 150 850 J. Keiller & Son, Ltd.
 " 49 295 Union L. Co., Ltd.
 " 50 300 L. & I. D. Jt. Co.
 " 25 140 Vokius & Co., Ltd.
 Germany, 20 115 L. Sutro & Co.

Guano—
 Cape, 311 t. D. De Pass & Co.

Iodine—
 Germany, 89 pkgs. A. Gibbs & Sons

Lead Acetate—
 Germany, 8 pkgs. Petri Bros.

Limestone—
 Belgium, 2½ t. C. Atkins & Nisbet

Magnesium—
 Germany, 2 pkgs. D. W. Greenhough & Sons

Manganese—
 Japan, 188 t. D. E. Recknell
 " 85 J. Swire & Sons
 Germany, 3 H. Johnson & Sons

Manganese Chloride—
 Germany, 4 pkgs. Burrell & Co.

Manure—
 Germany, 79 t. Humphrey & Co.
 " 30 Philipps & Graves
 " 70 Soundy & Sons
 Holland, 10 H. & E. Albert
 Belgium, 30 J. Gibbs & Co.

Methyl Alcohol—
 Germany, 8 dms. Stein Bros.
 " 18 Lister & Biggs
 Belgium, 73 Stein Bros.

Mica—
 U. States, £7 W. M. Smith & Sons

Muriatic Acid—
 Germany, 1 pkgs. L. & I. D. Jt. Co.

Naphthol—
 Holland, 8 pkgs. Philipps & Graves

Ochre—
 Holland, 13 pkgs. Philipps & Graves
 Germany, 2 cks. " "
 France, 7 cks. O'Hara & Hoar

Oxalic Acid—
 Norway, 20 pkgs. A. Hughes

Paraffin Wax—
 U. States, 4,943 brls. J. H. Usmar & Co.

Phosphate Rock—
 France, 268 t. Anglo Contl. G. Wks.
 Belgium, 50 Lawes Chemical Manure Co.

Plumbago—
 Holland, 17 cks. G. Rahn & Co.
 E. Indies, 36 cks. L. & I. D. Jt. Co.
 Germany, 60 cks. Prop. Scott's Wf.
 Holland, 22 cks. B. Gallaway

Potash—
 Canada, 192 c. S. Ward & Co.
 Germany, 7 pkgs. H. Lambert

France, 6 Mead, Son, & Co

Potassium Carbonate—
 France, 40 c. Spies Bros. & Co.
 " 2 cks. Beresford & Co.

Potassium Chloride—
 Germany, 100 pkgs. F. W. Berk & Co.,

Potassium Oxalate—
 Norway, 6 pkgs. A. Hughes

Potassium Sulphate—
 France, 100 pkgs. Petri Bros.

Pyrites—
 Spain, 195 t. C. Tennant, Sons, & Co.

Rosin—
 U. States, 1,521 brls. H. Hill & Sons

Saltpetre—
 E. Indies, 631 bgs. Brown & Elmslie
 Germany, 3 cks. " "
 E. Indies, 631 Lucas & Spencer's Wf.
 Belgium, 85 P. Hecker & Co.

Salts of Sorrell—
 Belgium, 5 pkgs. T. Palmer

Soda—
 Holland, 110 c. Beresford & Co.

Sodium Nitrate—
 Chili, 52 pkgs. M. D. Co.

Starch—
 Holland, 510 pkgs. C. J. Capes & Co.
 " 50 J. Barber & Co.
 " 60 Philipps & Graves
 Germany, 100 J. Hall, junr., & Co.
 U. States, 260 Oswega Co.
 Belgium, 10 Leach & Co.

Stearine—
 Belgium, 64 bgs. H. Hill & Sons
 Holland, 62
 " 14 J. Owen
 France, 80 Walbaum & Tosetti
 U. States, 100 cs. G. Ward & Sons

Sulphur—
 Italy, 7 t. J. Kitchin, Ltd.
 " 20 G. Boor & Co.
 " 50 J. Besant
 " 5 F. Smith
 Carthagen, 100 A. Hunter & Co.

Talc—
 E. Indies, £90 W. M. Smith & Sons
 Belgium, 7 B. Gallaway

Tartaric Acid—
 Holland, 12 pkgs. Middleton & Co.
 " 2 J. Owen

Tin Oxide—
 Holland, 500 cks. Soundy & Sons

Tin Salts—
 Germany, 2 pkgs. H. Lambert

Surpentine—
 Savannah, 2,077 brls. Nickoll & Knight

Ultramarine—
 Germany, 40 cks. W. Thatcher
 Holland, 10 cks. J. Barber & Co.
 " 13 pkgs. Haefner, Hilpert, & Co.
 Belgium, 9 W. Harrison & Co.

Varnish—
 France, 20 pkgs. Flageolet & Co.
 U. States, 22 T. Whittingham
 Belgium, 10 J. & T. Seddon

White Lead—
 Germany, 20 cks. G. F. Clifford
 " 31 Blundell, Spence, & Co.

Germany,	20	Burrell & Co.
Holland,	22	"
Germany,	25	S. H. Willoughby
"	40	Randall Bros.
France,	18	Colthurst & Harding
Belgium,	20	O'Hara, Matthew, & Co.

Zinc Oxide—

Germany,	26 cks	C. Tennant, Sons, & Co.
Holland,	50 brls.	M. Ashby, Ltd.
Germany,	25 cks.	S. Ward & Co.

LIVERPOOL.

Week ending September 28th.

Acetic Acid—

Antwerp,	35 pkgs.	J. T. Fletcher & Co.
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Ammonium Sulphate—

Rotterdam,	24 cks.	
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Barytes—

Antwerp,	23 cks.	
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Castor Oil—

Calcutta,	555 cs.	Ralli Bros.
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Colours—

Rotterdam,	5 cks.	19 cs.
Hamburg,		
Antwerp,	3	J. T. Fletcher & Co.

Dyestuffs—

Divi Divi	5 bgs.	
Hamburg,		
Extracts	6 brls.	J. Kenyon & Sons

Bordeaux,	300 cks.	
Baltimore,	10 brls.	Houston & Laurisch

"	50	Mucklow & Co.
"	20	Hervey, Peck & Hervey

Indigo	2 cs.	
Boston,		
Fustic	563 ps.	Widow Duranty & Son

Carthage,	1,890 lgs.	G. H. Muller & Co
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Colon,	1,071	
"	4,601 ps.	D. Midgley & Son

"	345	Edwards Bros.
"	1,920	Widow Duranty & Son

"	122	A. Dobell & Co
Valonia	76½ t.	Barry Bros.

Smyrna,	25½	Essayun, Shahum & Co.
"	76	P. T. Apostolo

"	20½	1,509 bgs.
Dyestuffs (otherwise undescribed)	55 brls.	

Glucose—

New York,	284 brls.	
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Lime—

New York,	681 sks.	
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Limestone—

Antwerp,	1 cs.	
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Manganese—

Poti,	2,670 t.	
Gothenburg,	26	Caucasian Trading Co., Ltd.

Naphtha—

New York,	7,500 brls.	
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Ochre—

Bordeaux,	36 cks.	
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Paint—

New York,	30 brls.	Anglo American Oil Co.
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Paraffin Scale—

Philadelphia,	250 cs.	50 brls.
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Phosphates—

Ghent,	1,000 bgs.	
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Potashes—

Montreal,	27 brls.	
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New York,	50 kgs.	
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Potassium Chlorate—

Philadelphia,	100 kgs.	P. R. M'Quie & Son
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Pyrites—

Huelva,	2,642 t.	Matheson & Co.
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Rosin—

New York,	15 brls.	
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Baltimore,	387	
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Saltpetre—

Calcutta,	186 bgs.	
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Hamburg,	2 cks.	
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Salts of Tartar—

Rotterdam,	14 cks.	
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Silver Sulph—

Colon,	12 pkgs.	Sanchez & Gaffron
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Size—

Rotterdam,	2 cs.	
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Soapstone—

Bordeaux,	200 bgs.	G. G. Blackwell
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Soda—

Rotterdam,	152 brls.	11 cks.
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Sodium Nitrate—

Hamburg,	10 cks.	
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Starch—

Iquique,	7,297 bgs.	
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Stearine—

Boston,	150 cks.	Strafford Bros. & Co.
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Tallow—

Antwerp,	253 cs.	J. T. Fletcher & Co.
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Tar—

Rotterdam,	40	
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Stearine—

Baltimore,	1,199 bgs.	
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Tallow—

Boston,	250 tcs.	J. Mackee & Co.
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"	195	77 bds. 39 brls.
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Montreal,	25	H. Cook & Co.
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San Francisco,	583 brls.	
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Antwerp,	11 cks.	
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Philadelphia,	226 tcs.	
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Tar—

Bordeaux,	1 cs.	
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Tartar—

Bordeaux,	11 cks.	
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Tartaric Acid—

Rotterdam,	16 cks.	Sache & Klemm
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Ulramarine—

Hamburg,	4 cks.	
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Rotterdam,	2	13 cs.
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White Lead—

Rotterdam,	34 cks.	
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HULL.

Week ending September 30th.

Acetic Acid—

Rotterdam,	17 balns.	12 cubs. Hutchinson & Son
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Albumen—

Hamburg,	30 cks.	Wilson, Sons, & Co., Ltd.
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Alkali—

Bremen,	2 pkgs.	Veltmann & Co.
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Barytes—

Riga,	50 bgs.	73 cks. Wilson, Sons, & Co., Ltd.
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Rotterdam,	104	Hutchinson & Son
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Bremen,	24	Veltmann & Co.
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"	103 bgs.	
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Benzole Acid—

Rotterdam,	1 cs.	G. Lawson & Sons
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Castor Oil—

Antwerp,	29 brls.	
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Chemicals (otherwise undescribed)

Antwerp,	68 pkgs.	Wilson, Sons, & Co., Ltd.
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Rotterdam,	2 cs.	W. & C. L. Ringrose
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Bremen,	4	Veltmann & Co.
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Hamburg,	1 ck.	Wilson, Sons, & Co., Ltd.
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Dunkirk,	9 pkgs.	"
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Colours—

Antwerp,	12 cks.	Wilson, Sons & Co., Ltd.
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"	66	
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Flushing,	28 pkgs.	G. Lawson & Sons
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Amsterdam,	1 kg.	W. & C. L. Ringrose
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Stettin,	12 cks.	
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Rotterdam,	118 pkgs.	
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"	14 pkgs.	24 cks. G. Lawson & Sons
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New York,	2 kgs.	Wilson, Sons, & Co., Ltd.
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Bremen,	3 cks.	Veltmann & Co.
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"	3 cs.	J. Pyefinch & Co.
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Flushing, 5 cs. 11 cks.

"	4 cs.	1 pkg. Hutchinson & Son
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Cottonseed Oil—

New York,	2,000 brls.	Wilson, Sons, & Co., Ltd.
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Cream of Tartar—

Rotterdam,	1 ck.	Hutchinson & Son
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Cryolite—

Copenhagen,	3 cks.	Wilson, Sons, & Co., Ltd.
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Dextrine—

Stettin,	50 bgs.	Wilson, Sons, & Co., Ltd.
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Dyestuffs—

Alizarine	91 cks.	G. Lawson & Sons
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Flushing,	48	W. & C. L. Ringrose
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Rotterdam,	42 pkgs.	
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"	48	
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Madder

Rotterdam,	2 cks.	Hutchinson & Son
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Valonia

Smyrna,	153 t.	
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Farina—

Antwerp,	164 bgs.	
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Harlingen,	100	
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Stettin,	290	Wilson, Sons, & Co., Ltd.
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"	820	
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"	262 cs.	"
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Glucose—

Stettin,	12 cks.	650 bgs.
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New York,	400 brls.	
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Mica—

Christiania,	3 cs.	Wilson, Sons, & Co., Ltd.
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Ochre—

Antwerp,	21 cks.	Sissons Bros. & Co.
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Paint—

New York,	20 cs.	Wilson, Sons, & Co., Ltd.
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Rosin—

Bordeaux,	6 cks.	
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Soap—

Riga,	20 cs.	Wilson, Sons, & Co., Ltd.
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Starch—

Antwerp,	144 cs.	Bailey & Leatham
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Ghent,	40	Wilson, Sons, & Co., Ltd.
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Bremen,	3,022	Veltmann & Co.
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Stearine—

Antwerp,	10 bgs.	Wilson, Sons, & Co., Ltd.
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Rotterdam,	23 brls.	"
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Sulphur—

Antwerp,	1 bg.	Wilson, Sons, & Co., Ltd.
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Tallow—

New York,	420 pkgs.	71 cks. Wilson, Sons, & Co., Ltd.
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Tartar—

Bordeaux,	1 ck.	
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Tartaric Acid—

Rotterdam,	3 cks.	Hutchinson & Son
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Turpentine—

Bordeaux,	10 brls.	Rawson & Robinson
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Ulramarine—

Bremen,	4 cks.	
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Yarnish—

New York,	20 brls.	Wilson, Sons, & Co., Ltd.
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Rotterdam,	8 cks.	Hutchinson & Son
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Waste Salt—

Hamburg,	538 bgs.	Furley & Co.
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White Lead—

Antwerp,	112 cks.	Bailey & Leatham
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"	12	J. Good & Sons
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"	47	Hanger, Watson & Harris
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GLASGOW.

Week ending October 5th

Acetate—

New York,	247 bgs.	Stevenson & Rae
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Acetate of Lime—

New York,	1,613 bgs.	
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Alum—

Rotterdam,	17 cks.	J. Rankine & Son
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Hamburg,

Zinc White—		
Rotterdam,	100 cks.	J. Rankine & Son
"	50	

TYNE.

Week ending September 30th.

Alum Earth—		
Hamburg,	18 cks.	Tyne S. S. Co.
Cellulose—		
Rotterdam,	104 bls.	Tyne S. S. Co.
Colours—		
Rotterdam,	1 cs.	Tyne S. S. Co.
Hamburg,	4 cks.	"
Dextrine—		
Hamburg,	1 bg.	Tyne S. S. Co.
Farina—		
Hamburg,	50 bgs.	Tyne S. S. Co.

Manure—		
Laurvig,	1 cs.	
Plumbago—		
Antwerp,	5 bgs.	Tyne S. S. Co.
Salt—		
Harburg,	250 t.	
Starch—		
Antwerp,	91 cs.	Tyne S. S. Co.
White Lead—		
Antwerp,	28 brls.	Tyne S. S. Co.
Zinc Oxide—		
Antwerp,	25 brls.	Tyne S. S. Co.

GRIMSBY.

Week ending September 30th.

Albumen—		
Hamburg,	8 cks.	
Aluminium—		
Dieppe,	2 cks.	

Caoutchouc—		
Hamburg,	1 cs.	
Chemicals (otherwise undescribed)		
Hamburg,	2 cks.	
Dyestuffs (otherwise undescribed)		
Dieppe,	25 cks.	
Farina—		
Hamburg,	225 bgs.	
Size—		
Hamburg,	40 pkgs.	

GOOLE.

Week ending September 27th.

Alkali—		
Hamburg,	10 cks.	
Calais,	18	
Caoutchouc—		
Boulogne,	11 cks.	1 cs.

Chemicals (otherwise undescribed)		
Rotterdam,	3 brls.	
Dyestuffs—		
Alizarine		
Rotterdam,	61 brls.	
Logwood		
Belize,	1,365 t.	
Dyestuffs (otherwise undescribed)		
Boulogne,	79 cks.	7 cs. 28 pkgs.
Ghent,	9	4
Potash—		
Antwerp,	40 dms.	10 cks.
Calais,	8	
Pyrites—		
Huelva,	1,195 t.	
Saltpetre—		
Rotterdam,	100 bgs.	
Hamburg,	20 kgs.	6 cks.
Waste Salt—		
Hamburg,	547 cks.	508 bgs.

EXPORTS OF CHEMICAL PRODUCTS

OF

THE PRINCIPAL PORTS OF THE UNITED KINGDOM.**LONDON.**

Week ending October 4th.

Acetic Acid—		
Brisbane,	89 cs.	£213
Acids—		
Madras,	3 pkgs.	£12
Teneriffe,	20 cs.	30
Berbec,	6 cbys.	33
Alkali—		
Lyttelton,	2 t. 7 c.	£16
Colombo,	19	7
Alum—		
La Libertad,	40 kgs.	£13
Aluminous Cake—		
Calcutta,	38 t. 13 c.	£125
Ammonia (Liquid)—		
Vera Cruz,	2 pkgs.	£5
Brisbane,	60 cs.	73
Ammonium Carbonate—		
Paris,	1 t. 3 c.	£36
Dunkirk,	19	30
Ammonium Chloride—		
Paris,	2 t. 10 c.	£90
Bussorah,	2	10
Bagdad,	1	39
Rio de Janeiro,	19	39
Shanghai,	18	32
Sydney,	11	30
Ammonium Sulphate—		
Hamburg,	150 t. 4 c.	£2,197
Madras,	10	18
Arsenic—		
Brisbane,	10 c.	£8
Barium Chlorate—		
New York,	10 c.	£53
Barium Nitrate—		
New York,	4 t.	£77
Benzole Acid—		
Philadelphia,	10 cs.	£70
Bone Ash—		
Mauritius,	200 t.	£780
Boracic Acid—		
Canterbury,	6 c.	£10
Brisbane,	15	30
Borax—		
Melbourne,	5 t.	£350
Borax and Ammonia (Liquid)—		
Vera Cruz,	10 pkgs.	£26
Boric Acid—		
Calcutta,	6 c.	£12
Calcium Chloride—		
B. Ayres,	10 t. 11 c.	£86
Carbolic Acid—		
Treport,	100 cns.	£106
Hamburg,	33 cks.	78
Brisbane,	30 drs.	18
Philadelphia,	8 t. 6 c.	148
Caustic Potash—		
Stockholm,	10 c.	£11
Christchurch,	2 t. 11 c.	103
Caustic Soda—		
Savannah,	5 t. 12 c.	£76
Natal,	9	17
E. London,	2	71
Algoa Bay,	9	9

Oamaru,	8	8
Calcutta,	8	84
Aden,	4	7
Greytown,	5	54
Chemicals (otherwise undescribed)		
Adelaide,	8 pkgs.	£61
Chloride of Lime—		
E. London,	38 cs.	£33
Citric Acid—		
Hamburg,	1 t.	£200
Marseilles,	2 c.	17
Oporto,	9 cks.	79
Lisbon,	5	44
St Petersburg,	10	85
Wellington,	1	8
Hobart,	1 cs.	9
Beirut,	1 kg.	9
Coal Products—		
Alizarine		
Alexandretta,	20 kgs.	£100
New York,	30 cks.	431
Bombay,	103	497
Aniline Dye		
Tientsin,	10 cs.	£85
Benzol		
Rotterdam,	42 drs. 10 cks.	£573
Boulogne,	30 pns.	235
Calais,	43 pkgs.	174
Creosote		
Selzette,	23,500 glns.	£235
Naphthaline		
Hamburg,	6 cks.	£55
Pitch		
Antwerp,	180 t.	£225
Paris,	15 cks.	50
Boston,	100	48
Baltimore,	1,129	610
Constantinople,	440 bgs.	75
Pyridine		
Rotterdam,	12 cks.	£86
Tar		
Boston,	102 cks.	£45
Durban,	20 rnlts.	12
Akyab,	15	9
Calais,	31 brls.	22
Tar Oil		
Treport,	26 brls.	£30
Copper Sulphate—		
Wellington,	1 t. 12 c.	£24
Brisbane,	10	8
Paris,	5	85
Odessa,	9	140
Cream of Tartar—		
Auckland,	10 c.	£38
Sydney,	3 t.	221
Dunedin,	10	41
Brisbane,	1	97
Wellington,	15	63
Melbourne,	1	80
Disinfectants—		
Gibraltar,	4 cks.	£15
Canterbury,	11 cs.	26
Colombo,	89 pkgs.	109
Aden,	29	20
Madras,	6 drs.	29
Brisbane,	28	48
Mauritius,	4	10
Shanghai,	11 c.	17
Adelaide,	5	10
Sydney,	4	21

Hydrogen—		
Rotterdam,	9 cs.	£30
Manure—		
Lisbon,	8 t. 2 c.	£57
Jamaica,	150 bgs.	165
Mauritius,	331	1,243
Passages,	49	8
Auckland,	96	10
Bordeaux,	79	14
Rouen,	59	250
Treport,	79	8
Nitric Acid—		
Melbourne,	11 cs.	£19
Oxalic Acid—		
Sydney,	11 c.	£16
Phosphorus—		
Las Palmas,	4 cs. 1 c.	£55
Hio,	5	52
Melbourne,	10	101
Potassium Bichromate—		
Calcutta,	11 c.	£25
Potassium Chlorate—		
Canterbury,	5 c.	£20
Hio,	2 t. 10	102
New York,	10	16
Potassium Cyanide—		
Boulogne,	6 c.	£56
Potassium Iodide—		
Oporto,	1 ck.	£66
Potassium Nitrate—		
Montserrat,	1 t. 1 c.	£20
Pyrogallie Acid—		
Hamburg,	1 bx.	£10
Salicylic Acid—		
Sydney,	5 c.	£144
Saltpetre—		
Dunedin,	10 c.	£11
Wellington,	10	12
S. Michaels,	16	16
Oporto,	9 t. 4	186
Gibraltar,	20	400
Sheep Dip—		
Cape Town,	50 drs. 13 pkgs.	£44
E. London,	2 cs.	10
B. Ayres,	1,002	3,000
M. Video,	50	150
Soda		
Jersey,	1 t. 2 c.	£4
Cape Town,	1	13
Soda Crystals—		
Demerara,	1 t. 13 c.	£7
Sodium Bicarbonate—		
Vera Cruz,	10 c.	£5
Wellington,	1 t. 5	9
Sodium Carbonate—		
Brisbane,	1 t.	£8
Sodium Silicate—		
Greytown,	5 t. 6 c.	£23
Sodium Tartrate—		
Oporto,	8 c.	£29
Sulphur—		
Algoa Bay,	2 t. 5 c. 60 kgs.	£59
Cape Town,	200 pkgs.	154
Calcutta,	5	48
Sulphuric Acid—		
Colombo,	8 t. 15 c.	£38

Superphosphate—		
Mauritius,	50 t.	£200
Tartaric Acid—		
Wellington,	12 c.	£65
Canterbury,	2	10
LIVERPOOL.		
Week ending October 4th.		
Alum—		
Corunna,	1 t.	2 q. £5
Seville,	2	10 c. 11
Lisbon,	6	16 30
B. Ayres,	6	5 37
Tripoli,	2	14 13
Mersyne,	1	19 10
Alexandretta,	7	5 41
Galatz,	1	6
Beyrout,	5	25
Valparaiso,	1	18 2 10
Constantinople,	1	6
Bahia,	1	2 7
Alum Cake—		
Alexandria,	2 t. 7 c. 2 q.	£8
Ammonia (Liquid)—		
Philadelphia,	3 t. 8 c.	£100
Ammonium Carbonate—		
Vera Cruz,	2 c.	£5
Oporto,	10	17
Danzig,	1 t.	33
New York,	9	12 3 q. 300
Ammonium Chloride—		
Constantinople,	14 c. 2 q.	£26
Philadelphia,	3 t. 12	77
Alexandria,	1	35
Piræus,	4	7
Volo,	4	7
Smyrna,	1	35
Trebizonde,	7	2 13
Beyrout,	7	2 13
Ammonium Sulphate—		
Rotterdam,	30 t. 5 c. 2 q.	£430
Barcelona,	67	19 3 1,050
Hamburg,	9	19 150
Antwerp,	30	3 1 404
Huelva,	4	3 60
Genoa,	10	3 145
Rotterdam,	40	14 1 509
Havre,	50	12 2 711
Cheribon,	51	5 590
Sourabaya,	92	9 2 1,394
Arsenic—		
Syria,	2 t. 13 c.	£25
B. Ayres,	2	2 43
Asbestos—		
M. Video,	1 cs.	
Calcutta,	2 cks.	
Barium Chlorate—		
Hamburg,	19 c.	£79
Basic Slag—		
Granville,	190 t.	
Bleaching Powder—		
Baltimore,	141 cks.	
Bilbao,	64	40 kgs. 40 brls
Passages,	32	20
Seville,		

HULL.*Week ending September 30th.*

Alkali —	
Fluine,	10 bls.
Flushing,	1 ck.
Ammonium Sulphate —	
Dunkirk,	479 bgs.
Hamburg,	753
Basic Slag —	
Danzig,	255 t.
Memel,	1,474
Bleaching Powder —	
Bombay,	125 dms.
Stettin,	53 cks.
Borax —	
Antwerp,	23 cks.
Caustic Soda —	
Antwerp,	44 kgs.
Abo,	20 cks.
Bombay,	10
Bergen,	4 dms.
Bari,	52
Danzig,	182
Flume,	20
Hamburg,	1 ck.
Riga,	535
Chemicals (otherwise undescribed)	
Antwerp,	32 cks. 10 pks.
Amsterdam,	12 12
Abo,	8
Bombay,	1,189 80 pks.
Bordeaux,	30 cs.
Bremen,	20
Christiania,	9 40 4
Copenhagen,	4 14
Drontheim,	2
Danzig,	28 30
Gothenburg,	40 20 8
Hamburg,	137
Karlsruhe,	51
Konigsberg,	2
Lima,	15 pks.
Riga,	2 100 pks.
Rosendal,	11 20
St. Petersburg,	15
Stettin,	169 10 pks. 1
Cottonseed Oil —	
Antwerp,	483 cwt.
Bremen,	36
Drontheim,	33
Flushing,	202
Hamburg,	373
Konigsberg,	78
Rosendal,	742
Stettin,	50
Trieste,	1,194
Cresote —	
Gothenburg,	160 cks.
Trieste,	5
Dyestuffs (otherwise undescribed)	
Amsterdam,	1 bl.
Christiania,	100
Danzig,	20 cks 3 cs
Hamburg,	2
Rosendal,	1
St. Petersburg,	61 1 203 bls.
Linseed Oil —	
Antwerp,	40 cwt.
Bombay,	252
Bordeaux,	52
Bergen,	18
Boston,	87
Christiania,	355
Christiansund,	70
Copenhagen,	6
Christiansand,	7
Drontheim,	10
Hamburg,	317
Messina,	8
Savanger,	62
Trieste,	174
Manure —	
Bordeaux,	15 t.
Dunkirk,	18
Hamburg,	44
Rosendal,	100
Stettin,	20
Mineral White —	
Bergen,	20 bgs.
St. Petersburg,	700 bls.
Venice,	25
Naphtha —	
Antwerp,	12 cks.
Copenhagen,	3 bls.
Painters' Colours —	
Antwerp,	2 cs. 18 cks. 441 pks.
Amsterdam,	2
Abo,	2 1 pkge.
Bombay,	116 12 560
Bergen,	3 150
Bremen,	2
Christiania,	15 80 80 dms.

Christiansand,	150
Copenhagen,	1
Dunkirk,	1
Danzig,	36 50
Flume,	9
Ghent,	31
Hamburg, 13	67 18
Rouen,	14
Rotterdam,	55
St. Petersburg,	3 1
Stettin,	40
Trieste,	9
Pitch —	
Antwerp,	130 t.
Helsingfors,	75
Size —	
Flushing,	10 cks.
Soap —	
Christiania,	65 cs. 61 bls.
Tallow —	
Bombay,	11 cks.
Tar —	
Amsterdam,	10 cks.
Dunkirk,	66
Hamburg,	1
Helsingfors,	600
Rosendal,	22
Trieste,	qty.
Tar Salts —	
Danzig,	11 cks.
Varnish —	
Antwerp,	4 bls. 1 ck.
Bombay,	75 dms.
Christiania,	1 cs.
Copenhagen,	4 bls.
Ghent,	4 1
Hamburg,	1 4

GLASGOW.*Week ending October 5th.*

Acids —	
Bombay,	252 t. 10 c. £1,390
Alumina Sulphate —	
Calcutta,	18 t. 6 c. £48
Ammonia —	
Hamburg,	40 t. £499
Ammonium Sulphate —	
Demerara,	84 t. 1½ c. £1,250
Bleaching Powder —	
Calcutta,	50 t. 2 c. £500
Melbourne,	5 70
Boracic Acid —	
Japan,	2 t. 10 c. £91
Melbourne,	2 78
Borax —	
Japan,	1 t. 3¼ c. £35
Melbourne,	3 ¾ 94
Castor Oil —	
Adelaide, S.A.,	156 gls. £47
Caustic Soda —	
Calcutta,	42 t. 3 c. £345
Coal Products —	
Cresote Oil	
Hamburg,	20 cks. £12
Pitch	
Boston,	24 t. £30
Hamburg,	10 15
Oporto,	60 13 c. 45
Danzig,	110 10 83
Tar	
Boston,	48 t. £104
Hamburg,	50 cks. 21
Danzig,	1,540 261
Tar Oil	
Danzig,	65 cks. £32. 11s.
Colours —	
Brisbane,	1 t. 5¼ c. £70
Dyestuffs —	
Extracts	
Montreal,	10 t. 6½ c. £319
Logwood	
Montreal,	11 t. 16½ c. £66
Lisbon,	10 8¼ 82
Farina —	
Calcutta,	11 t. 19 c. £130
Glucose —	
Cape Colony,	1 t. 13 c. £20
Linseed Oil —	
Cape Colony,	4 t. 17 c. £113
Adelaide,	6 4¼ 148
Brisbane,	2 10 104
Magnesium Sulphate —	
Bombay,	14 t. 3¼ c. £55
Manure —	
Demerara,	50 t. 13¼ c. £600
Paint —	
Calcutta,	£57

Singapore,	96
Natal,	60
Demerara,	42
Brisbane,	3 t. 2 c. 101
Adelaide, S.A.,	3 3 48
Painters' Colours —	
Cape Colony,	£246
Trinidad,	57
Melbourne,	125
Lisbon,	32
Paraffin Wax —	
Cape Colony,	6 t. 13¼ c. £198
Italy,	12 13¼ 316
Hungary,	18 16 423
Hamburg,	56 bgs. 15 cs. 195
Danzig,	10 14
Potash Salts —	
Adelaide,	3 t. 2¼ c. £381
Sydney,	5 ¾ 614
Potassium Bichromate —	
Hamburg,	22 cks. £397
Rotterdam,	3 60
Melbourne,	15¼ c. £26. 13s.
Gothenburg,	9 t. 9¼ £340
Potassium Sulphate —	
Trinidad,	10½ c. £20
Rosin —	
Calcutta,	10 t. 5 c. £51
Soap —	
Lisbon,	2 t. 18 c. £53
New York,	5 10½ 90
Sodium Bichromate —	
Italy,	5 t. 2¼ c. £125
Sulphuric Acid —	
Bombay,	7 t. 10 c. £37
Sulphuric Ether —	
Melbourne,	14¼ gls. £12
Tallow —	
Cape Colony,	4 t. 19¼ c. £163
Ultramarine —	
Calcutta,	1 t. £43
Varnish —	
Cape Colony,	114 gls. £51
Adelaide,	29
White Lead —	
Cape Colony,	6 t. ¾ c. £106
Brisbane,	1 2 25
Oporto,	2 1¼ 39
Lisbon,	28

TYNE.*Week ending September 30th.*

Alkali —	
Danzig,	10 t. 11 c.
Hamburg,	5 16
Rotterdam,	6 16
Christiania,	2 16
Copenhagen,	20
Antwerp,	6 2
St. Petersburg,	1 2
Alum Cake —	
Horsens,	13 t. 1 c.
Ammonium Sulphate —	
Hamburg,	20 t.
Antimony —	
Danzig,	2 t. 10 c.
Rotterdam,	2 10
Bergen,	6 16
Copenhagen,	1 10
Gefle,	10
Montreal,	7
Hamburg,	1 1
Arsenic —	
St. Petersburg,	15 t. 7 c.
Barium Carbonate —	
Hamburg,	206 t. 18 c.
Barium Hydrate —	
Antwerp,	56 t. 2 c.
Blanc Fixe —	
St. Petersburg,	1 t. 4 c.
Bleaching Powder —	
Danzig,	24 t. 5 c.
Hamburg,	94 1
Christiania,	14 19
Rotterdam,	12 17
Riga,	120 1
Gothenburg,	4 19
Bergen,	4 19
Drontheim,	9 19
Antwerp,	56 13
Montreal,	148 13
St. Petersburg,	87 12
Calcined Magnesia —	
Genoa,	10 c.
St. Petersburg,	1
Caustic Soda —	
Antwerp,	24 t. 19 c.
Hamburg,	20 13

Rotterdam,	17
Christiania,	5 16
Gothenburg,	4 18
Copenhagen,	1 9
Genoa,	57 5
Gefle,	1
Montreal,	66 2
St. Petersburg,	87 4

Copperas—

Copenhagen, 2 t. 11 c.

Linseed Oil—

Ergasteria, 7 c.

Hamburg, 4

Litharge—

Antwerp, 1 t.

Christiania, 12 c.

Montreal, 15 4

Ochre—

Christiania, 3 t. 3 c.

Drontheim, 16

Paint—

Ergasteria, 18 c.

Antwerp, 1 t. 4

Hamburg, 4 15

Rotterdam, 9

Bergen, 1 3

Pitch—

Antwerp, 3

Rosin—

Antwerp, 1 c.

Soda—

Christiania, 16 t. 14 c.

Rotterdam, 21 17

Antwerp, 9 18

Montreal, 15

Hamburg, 21 11

Soda Ash—

Danzig, 50 t. 19 c.

Laurvig, 10

Gefle, 125 9

Hamburg, 27 16

Sodium Hyposulphite—

Riga, 10 t. 1 c.

Sodium Sulphate—

Copenhagen, 25 t. 10 c.

Westervik, 403 10

Gothenburg, 3 6

St. Petersburg, 10 6

Sulphur—

Riga, 100 t.

Ghent, 5

Superphosphate—

Frederikshavn, 19 t. 12 c.

Tallow—

Hamburg, 16 c.

Turpentine—

Antwerp, 5 galns.

White Lead—

Ergasteria, 4 c.

Montreal, 50 t. 7

GOOLE.*Week ending September 27th.***Chemicals (otherwise undescribed)**

Boulogne, 1 ck.

Ghent, 12

Hamburg, 80

Rotterdam, 1

Coal Products (otherwise undes.)

Boulogne, 1 ck.

Dunkirk, 25

Ghent, 63

Hamburg, 55 bgs.

Cresote—

Knysna, 1,901 brls.

Dyestuffs (otherwise undescribed)

Boulogne, 1 ck.

Hamburg, 11 kgs.

Manure—

Boulogne, 166 bgs.

Pitch—

Antwerp, 70 t.

GRIMSBY.*Week ending September 30th.***Chemicals (otherwise undescribed)**

Dieppe, 33 cks. 54 pks.

Rotterdam, 41

Coal Products (otherwise undes.)

Dieppe, 40 cks. 89 brls.

Dyestuffs (otherwise undescribed)

Dieppe, 1 cs. 4 cks.

Farina—

Antwerp, 10 cks.

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Notices.

communications for the *Chemical Trade Journal* should be sent, and Cheques and Post Office Orders made payable to—

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Subscribers are invited to forward items of intelligence, or cuttings from newspapers, of interest to the trades concerned.

Articles, reports, and correspondence on all matters of interest to the chemical and allied industries, home and foreign, are solicited. Contributors should condense their matter as much as possible, on one side only of the paper, and in all cases give their names and addresses, not necessarily for publication. Sketches should be on separate sheets.

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A HINT TO ANALYSTS.

DURING the last twelve months the war against the chemical department of Somerset House has been waged rather more vigorously than it has been for some time past. Nor is this very surprising. At the same time it is highly desirable that those in the ranks of the belligerents should be careful to see that they and their fellows conduct themselves in such a manner as to avoid all possibility of their opponents pointing derisively to any quarter and coupling the action with the cry of *et tu quoque*.

About nine months ago mention was made of the possibility of this being the case, but the incident to which our attention had been drawn at the time, had occurred in Scotland; and therefore did not seem to come so closely home; though the Institute of Chemistry, of course, includes in its charter Great Britain and Ireland. Commendable as the efforts of the Institute may be in endeavouring to surround its flock with a pale of safety, by excluding black sheep, after all said and done, as much real good can be effected by the individual efforts of its members to maintain the tone of the profession, and its pretensions to probity.

There have been several references again lately in the daily press which show that there is a feeling among many of those who come into close contact with public and private analysts that they charge a lot and do not do too much for the money, in so much that their results are not always satisfactory. After it has become an open secret that a great deal of public analysts' work is done by pupils, it is most important that the results should be on all fours with those of other analysts, and in accordance with the demands of common sense; so as to substantiate the fact that reliable and trustworthy work can be done by pupils and assistants (the latter of course being as a rule fully qualified) under the supervision of a master eye. Putting aside the obviously biased and unjustifiable aspersions made against the analyst to the Middlesex County Council lately, there has been some serious discussion elsewhere as to the advisability of employing one chemist instead of two, who should spend *all* his time in the service of the Council.

Though this suggestion was only the subject of discussion and the proposal was ultimately discarded, it shows that municipal and other representatives of the people are disposed to be more critical and exacting than was their wont heretofore, and it therefore behoves chemists to treat them in the way which their latter-day enlightenment merits. These facts are, it may truly be said, of no very serious import, mere straws as it were, but for all that they perform the proverbial service of shewing which way the wind blows, and it is their accumulation, and the final addition of the last one which can break the back of the desert horse even.

But, unfortunately, we have not only propositions to contend against, but actual statements. It is time something was done when a medical officer of health states to his sani-

tary committee that he has in his possession samples of water which stink, and yet have been declared by analysts to be pure; while a statement is made by the sanitary inspector to the effect that samples of water containing soapsuds had also been reported upon by analysts as being pure.

It may be possible for a water which might be considered good under certain circumstances to become obnoxious through subsequent putrefaction, but the latter statement is too remarkable. It is not as if the complaints were made against the results of the medical officer of health. This would put another complexion upon the matter; as with all due deference to the medical profession, we must say that if it were so, except in a few cases, we should not feel justified in attaching any more significance to the statements than we should associate with like remarks upon the results of a *post-mortem* examination made by an analyst. But it is the conclusions of analysts *bona-fide* that are used to tickle the risible faculties of sanitarians. And the matter goes even further.

It is possible, and not unfrequently happens owing to some special reason, that two analysts may differ on certain points, but here we have the plural number employed, leading to the conclusion that similar results, which are alleged to be erroneous, have been obtained from independent sources.

It is quite possible, and we should hope highly probable, that the analysts, who ever they may be, may have something to say in this matter by way of expatiation; we will not say exculpation till their culpability has been established. A blank denial of these statements, or else an explanation of the circumstances would certainly be gratefully accepted by the members of the profession to whom it is, we think, in a measure now due, for although silence be the fence round wisdom, taciturnity may also be construed into consent, and this somehow, we feel, would mean allowing a false impression to be made on the minds of many.

As a whole, however, these incidents give analysts an inkling of how closely the interests of their profession are wedded to their personal actions. We should hardly be justified in saying they constitute a warning, as we have little reason to suspect that a warning is necessary. Suffice it to say that circumspection, like politeness, costs nothing, and when once attention has been arrested, all that is requisite will, we trust, have been done, for a nod is as good as a wink to a blind horse.

THE GAS SUPPLY OF LONDON.

THE quality of the gas supplied to the City of London for the week ending October 7th, 1893, was fairly good, though the deficiencies were only two in number the discrepancies were rather large. According to the report of Mr. W. J. Dibdin, chemist and superintendent gas examiner to the London County Council, the tests made at the various testing stations showed two deficiencies in illuminating power, one against the Gas Light and Coke Co. and the other against the South Metropolitan Gas Co. The following figures have been prepared from the report, and show the average composition of the gas calculated on the mean test:—

Company.	No. of districts tested.	Illuminating power (in stand. sperm candles).	Sulphur. Grains in 100 cb. ft.	Ammonia. Grains in 100 cb. ft.	Sulphuretted hydrogen.
		Mean average.	Mean average.	Mean average.	
Gas Light and Coke Co.	12	16.45	9.39	0.26	Nil.
South Metropolitan Gas Co.	6	16.63	10.70	0.48	Nil.
Commercial Gas Co.	2	16.45	7.75	0.45	Nil.

The standard gas supplied by these companies should have an illuminating power of 16 sperm candles, and contain not more than 22 grains of sulphur and 4 grains of ammonia per 100 cub. ft. of gas, on an average of three days, with a pressure of one inch between sunset and midnight, and six-tenths of an inch between midnight and sunset.

Official Memoranda.

(From the Board of Trade Journal.)

THE CYPRUS CUSTOMS TARIFF.

THE following is an abstract of the Cyprus tariff which came into operation last August. The *ad valorem* duties on imports shall be calculated on the value at the place of shipment or purchase of the goods, with the addition of the cost of transport, including insurance, necessary for the importation of the goods into Cyprus at the port of final discharge. The High Commissioner in Cyprus at any time admit goods free of customs duties (An oke = 2 avoirdupois ounces.)

ARTICLES.	RATES OF DUTY NOW LEVIED.
Candles	per oke. 0
Cement, Portland	per brl. of 150 okes. 0
" other sorts	" " 0
Gum, Mastic	per oke. 0
Indigo	" " 0
Logwood	per 100 okes. 0
Matches (Wooden)	" " 0
Olive Oil, in bulk	" " 0
Cotton Seed Oil, in bulk	" " 0
Other Oils, in bulk	" " 0
Paints and Colours (excepting artists'	" " 0
Petroleum (in 25 oke cases net weight)	per case. 0
Salammoniac	per 100 okes. 0
Table Salt	per oke. 0
Saltpetre	" 0
Soap (Toilet)	" 0
Soap (other sorts)	" 0
Starch	per 100 okes. 0
Valonia	per cantar. 0
Bees' Wax	per 100 okes. 1
Paraffin Wax	" " 0

EXEMPTIONS.—The following articles have been abstracted from the list of goods admitted duty free, as being of direct importation from the chemical and allied trades:—

Lime.	Saccharometers.
Pitch and Tar.	Gypsometers.
Resin.	Tile and Brick-making Machinery.
Wine-testing Stills.	Ice-making Machinery.
Hydrometers.	Oil Presses.

IRON ORE IN SWEDEN.

The *Journal des Mines* states that a bed of iron of considerable richness has recently been discovered in Dalecarlie, in Sweden, stretching four kilometres in length, starting from Väkern-Holmen to the Mora-Vanern Railway. The ore is found near the surface and will largely facilitate its working; moreover, it is stated that it yields more than 70 per cent. of pure iron.

OCCUPATION OF FOREIGNERS DOMICILED IN FRANCE.

The following figures are of interest, as they show the number of foreigners employed in various trades in France. In the chemical industries the proportion of foreign to every 100 labourers is 13.4 per cent.; in metallurgical industries, 13 per cent.; in the manufacture of articles of iron and steel, 8.3 per cent.; in the leather industry, 4.5 per cent.; ceramics, 10 per cent.; in the textile trades, 22 per cent.; lighting, 11 per cent.; watch-making, making, and jewellery trades, 7 per cent. As in the case of masters or employers, it is in the chemical, gas, colour, dyeing, and refining trades that the largest number of foreign workpeople is found.

A NEW PAPER.

According to the *Droguisten-Zeitung* the patent has been refused in Germany for an invention consisting in the preparation of paper with the ordinary raw materials to which asbestos and parchment have been added. Any writing in ink on this paper may be removed by the application of a wet sponge. The paper pulp, after having been compressed by a roller, is submerged for a period of from 6 to 12 seconds, according to the thickness of the paper, in anhydrous sulphuric acid (20%) diluted with from 10 to 15 per cent. of water. The paper

passed between glass rollers, and it is then successively tempered in an ammoniacal solution and a second time in water, after it is well compressed between rollers and dried. It is said that product bears a complete resemblance to ordinary paper. Its use has been prohibited with a view to prevent the abuses to which it is liable to become liable.

CULTIVATION IN THE STRAITS SETTLEMENTS.

Report upon the Straits Settlements, the Belgian Consul-General reports, dealing with the question of the cultivation of indigo, that the production is much below the demand, and if a more intelligent and more careful extraction of the indigo than the present method were adopted, the profits on the supplies to the markets, which take nine-tenths of their indigo from India, would be very considerable.

In the Malay Peninsula is, in fact, more favourable to the cultivation of the indigo which is reproduced without any difficulty by sowing. In India seeds are only made use of for the reproduction of the plant, which is much more costly, since at each crop it is necessary to regather the seed, work the ground, roll and sow it. At the present time the cutting is planted without any special care, it requires attention nor manure for six years, and the harvest takes place in six months, whilst in India it only takes place after five or nine years.

As there exists no dry season under the equator, the plant is killed, and is not exposed, as in India, to the total destruction of the plant by the prolonged droughts. In order to extract the indigo, the Chinese are content to plunge 20 or 30 bundles of a foot in diameter for 24 hours into a wooden tub filled with water. These bundles are stirred with the aid of a kind of rake in a certain manner, and then withdrawn from the tub. The indigo is precipitated by pouring into it a certain quantity of lime water (prepared by the calcining of sea shells). The water is left for the night, the excess water is withdrawn, and the residue which constitutes the indigo is ready to be sent to market. The defective process just described the yield per acre and its value is valued at £27.

In the precipitation of the indigo is obtained by oxidation, the product is very pure, whilst the indigo obtained by the Chinese process contains numerous impurities coming from the lime-water at first, and from the usually foul and dirty water used by the Chinese.

SUGAR INDUSTRY IN THE NETHERLANDS.

A despatch to the Foreign Office Mr. C. L. des Graz, Her Majesty's Consul-General at the Hague, states: Beet-root may be cultivated entirely supplanting cane as the material used for the manufacture of sugar in this country.

Beet-root sugar manufacturer pays duty according to one of the following systems, either of which he is at liberty to adopt:—Under the *Prise en charge* system, the duty the manufacturer has to pay is calculated on the basis of an estimated yield of 1.45 or 1.4 refined sugar per hectolitre of juice and per degree of its purity according as the process of defecation takes place before or after the 1st of December. A supplementary duty of 5½ per cent. is levied on the juice if Dr. Steffen's method of separation is followed.

The estimated yield under this system has not been altered since 1867, and the cultivation of the beet-root and the process of manufacture from it have both improved since then, the consequence of which is that the actual amount of sugar obtained from the beet-root is much greater than the amount which it is estimated to yield.

The process or *overpond* on which the manufacturer has no duty to pay is a great advantage for him, the yield of "overpond" during the last few years averaged 22 per cent. The "overpond" may therefore be considered a general bounty on the production of sugar.

The second system the manufacturer can adopt is the "*exercice*." Under this system one manufactory only is worked under this method. In this case is levied on the direct output declared for home consumption. No previous duty is levied and no drawback granted on the output.

The duty on raw sugar is calculated according to its saccharine richness, deductions* being made; a margin is thus afforded to the manufacturer by him to greater or less profit according to the more or less successful methods of refining he employs.

It should be added that there is at present a bill before the 2nd Chamber of the States General which has for its object, by means of supervisory regulations to arrive at a correct estimate of the output of beet-root sugar manufacturers and refiners under the systems described above.

* Deduction of glucose with coefficient 2 and ash with coefficient 4, and a further deduction for waste of 1½ per cent.

In answer to the question as to how the duty on raw sugar is levied and as to how the drawback is granted to refiners on sugar exported, Mr. des Graz states:

The duty on raw sugar (for home consumption) and the equivalent drawback granted to refiners (on exportation) is calculated according to its saccharine richness as ascertained by the polariscope with deduction of the glucose with the coefficient 2 and the ash with the coefficient 4. A further deduction for waste during the refinery process is made of 1½ per cent. in the case of beet-root sugar and of 2½ per cent. in the case of cane sugar.

With regard to the amount of duty on raw sugar paid by the refiners and the amount of drawback granted to refiners on export, Mr. des Graz says:

The amount of duty on raw sugar paid by the refiners is 27 fl. (£2. 5s) per 100 kilogs. of refined sugar, and the amount of the drawback paid to refiners on exports is the same, viz.:—27 florins per 100 kilogs. of refined sugar exported. The home consumption of sugar in Holland is estimated at 40—42 million kilogs., and the amount of duty paid for sugar consumed in Holland is 8,500,000 fl. (£708,333).

THE MANUFACTURE OF WOOD-PULP IN THE UNITED STATES.

The Belgian Consul-General at Philadelphia, in a recent report supplies the following particulars of the wood-pulp industry in the United States:—

An industry, connected with the working of the forests, that of the manufacture of wood-pulp, has within late years largely developed in the United States. From 1881 to 1891 the increase in production was about 500 per cent. It is estimated that at the present time this industry consumes 1,000,000 cords of wood annually, and meanwhile the production is still far from what it might be were it not for the fear of overstocking the market.

The applications of wood-pulp have become very numerous; of it are made household utensils, casts, mouldings for the inside and outside ornamentation of houses; in Austria it has also been used as a sheathing for war-ships. But at first wood-pulp was used solely as the raw material for the manufacture of paper, and this is still the case in the United States. Now, already in this direction alone, production no longer keeps pace with the needs of consumption, as a proof of it may be sufficient to mention that newspapers and books absorb annually in the United States 1,000,000,000 lbs. of paper, and the wood-pulp would certainly supply two-thirds of this quantity.

This industry is represented by 22 States, of which 13 are on the Atlantic coast, two on the Pacific coast, and seven in the interior. It is in New York that the largest number of factories are to be found; they were 75 in 1890, or one-third of the total figure, but they are probably more numerous at the present time, for the new tariff has increased the duties on wood-pulp. It formerly paid 10 per cent., it is now taxed at \$2.50 per ton (dry weight) for pulp produced mechanically, at \$6 per ton (dry weight) for that produced chemically but not bleached, and at \$7 per ton (dry weight) when it is bleached.

Notwithstanding these increases, the imports only diminished by 2,197 tons during the fiscal year 1891-2, or 41,118 tons against 43,315, representing respectively a value of \$1,820,143 and \$1,902,689.

COAL MINING IN THE PHILIPPINES.

An industry which may, if regard be had to more or less recent data, produce excellent results, is that of coal-mining in the Philippines.

The French Consul at Manila states that in 1891 there were 61 coal mines, with an area of 9,150,000 sq. metres, out of the 213 declared mines in these islands.

Mining enterprises have met with little success hitherto, either because of the lack of means of communication, or by reason of the waste, or from other causes.

The opening of the first railway in the Philippines, the Dagupan line, which traverses the island of Luzon for 195 kilometres, has given rise to the hope that others will be constructed, and will render those parts accessible which are almost inaccessible at the present time.

The coal mines will certainly be the first to benefit from this new state of affairs in the largest island in the archipelago, since their product will be used on the spot by the engines of the trains and the surplus will be carried by the latter to those places where it is in demand.

It is now many years ago since the existence of carboniferous deposits was discovered in this colony. In 1827 several were found in the island of Cebu, and 25 years later capital was sought for to work these mines, from which great things were expected. These anticipations were not, however, realised, and none of the attempts at working were successful.

Later, a Manila mining engineer published a scientific and practical work on the mines of the Philippines, on the possibility of working

them with profit, and the advice given in this work has resulted in the working of the coal mines of the island of Cebu. The attempt is still being persevered with, and the results obtained are now being waited for with some curiosity.

At the present time, after numerous trials and analyses, it is established that the Cebu coal is of excellent quality, that it possesses great heating power, and that it is well adapted for steaming purposes. All that is necessary, therefore, is to work the mines already discovered, and to search for new ones, in order to obviate the necessity of buying coals from Australia and Japan, which are at present in use, in competition with Cardiff coal.

In addition to the Cebu mines, there are a certain number of demands for the working of coal mines presented to the government of the islands of Negros, Mindoro, and Masbate, and it is believed that the quality of the products of these new deposits will be similar to that of the old ones, seeing the geological formation of this archipelago.

The French Consul says that there is evidently a brilliant future for this industry, for the supply of coal to the coasting vessels, to the vessels trading between the Philippine islands and the ports of China, Singapore, and Saigon, and of the Spanish war ships, will yield large profits to the companies engaged in coal mining, and moreover the new railway lines which are to be constructed, and the various industrial enterprises will all require large quantities of this combustible.

TESTING FATS AND OILS.

By DR. E. MILLIAU.

THE difficulties of the chemical analysis of fatty matters are greatly increased, not only by the slight differences which characterise the various glycerides, but also by the numerous cases of isomerism, and the phenomena of oxidation and fermentation which modify their molecular structures, the resins and essential oils which they contain, the foreign matters which spoil them, the composition of which varies infinitely, according to the nature of the soil from which the plant draws nourishment, the method of extraction, age, and a thousand other causes, needless to mention. Since the methods of communication have been facilitated and exchanges have become more numerous, the different markets of the world have been flooded with fatty matters presenting different characters, though of the same nature as those which industry and commerce have been accustomed to.

We have been led to seek methods of analysis for oils not by their impurities, which vary according to their origin, but by the examination of their principal constituents, which remain practically the same for the same species.

For example, it is now well-known that the olive oil of Tunis, Morocco, and other provinces presents often the character of adulterated oils if analysed without proper precautions or by old processes.

Accordingly, most Governments and large companies have modified their specifications. It is indispensable for obtaining precise results to submit the material to a purification, preceded and followed by a number of filtrations. By thus removing the impurities, which when present alter the results, we bring back the fatty bodies of the same species to a type which is always practically the same. To reach this end we work sometimes with washing by hot distilled water, sometimes by strong or dilute alcohol, sometimes we refine the fatty matter by the use of caustic soda lye, containing 10 per cent. sodium hydrate, employed in the proportion of 10 per cent. of the fat. The emulsion is poured upon a saturated solution of sodium chloride, and by the action of gentle heat, the different parts separate and the clear oil holding in suspension insoluble particles of soap rises quickly to the surface.

It is well to note that fatty matter, even when neutral, as has been demonstrated, dissolves notable quantities of alcohol, which must be eliminated if this method of washing has been employed. The nature of the operation can not be fixed definitely; it varies according to the nature of the impurities and the object of the research. In determining the amount of volatile acids we must be contented with simple filtration, and when examining the oils of the *cruciferae* we must not use caustic soda, which changes organic sulphur to soluble sodium sulphide. Having finished the preliminary operations we can, according to circumstances, operate directly on the neutral fat or the fatty acids prepared from it.

The fatty acids collected in the nascent state, that is to say when they rise to the surface in a pasty mass, have much stronger chemical affinities than when melted and dehydrated. This difference is particularly remarkable in the examination of cotton-seed and sesame oils, the black and red colorations obtained very clearly with a mixture of 5 per cent. upon the nascent fatty acids are not visible with the same fatty acids when melted.

That purification skilfully made does not destroy the chemical characters of the oil, is easy to verify by treating comparatively the same oil containing 5 per cent. of the fatty matter the presence of

which we wish to demonstrate. The reactions of the added reagents are in general intensified by these different treatments.

By working upon the fatty acids of the neutral oils I have been able to demonstrate the purity of certain fatty matters which are adulterated and in which the presence of cotton-seed and sesame was indicated by the old processes, which I have been able to

I well know that in practice these preliminary operations appear very tedious, but I do not advise their use except where adulterations have been indicated by the usual methods, and is desired to make the proof positive.

Besides, I cannot understand why a chemist has always been in the analysis of such delicate materials as fats to discover an adulteration, a single drop of which will immediately turn olive oil black, arachide black, sesame red, etc., so that any inexperienced man can discover adulteration and bring the perpetrator to justice. The requirement of the most difficult part of chemical verification is almost incomprehensible, and is only to be excused by the ignorance of who ask it.

We will now proceed to the study of each oil in particular. I will pass rapidly over those which possess only a secondary interest, and lay greater stress upon those which are the object of a great number of sophistications—as for example, olive oil. But, in the first place, I will indicate rapidly the general processes, physical and chemical, which are used for the identification of the various fats.

GENERAL METHODS.

Specific Gravity.—Is taken with accuracy by the Mohr method, which is too well known to need description. It must be remembered that the specific gravity of the same fat varies greatly in different samples, and this physical character is not sufficient to decide on purity or adulteration.

Action of Nitrous Fumes.—We owe to a Marseilles gentleman, Poutet, the first serious process to recognise certain adulterations in olive oil. It was supposed especially to discover the presence of seed oil, which at that time was a very frequent adulteration, and which the process gave good results.

It is based upon the transformation of the oleine to its modification elaidine by the action of nitrous fumes. It has been modified by other chemists, Messrs. Boudet, Fauré, and Cailletet, the process of M. Cailletet was most sure and simple, and we use it in the following manner:

We take a tube 10 cm. long, 2.5 cm. wide, in which are placed the fat to be analyzed. Six drops of pure sulphuric acid at 66° C. are added, the tube shaken one minute, and then nine drops of a 10 per cent. solution of sodium nitrite in water are added, after which the tube is again shaken and plunged in boiling water, where it is left exactly five minutes, which it is cooled in a water bath at 8°—10° C., whence it is removed at the end of two hours, and the condition of the mass observed. It is well to note the different colorations obtained, first after the addition of the sulphuric acid, second after the addition of nitric acid, third after removal from the water bath, and fourth after chilling.

Sulphuric Saponification.—M. Maumené proposed to obtain the rise of temperature produced by rapidly mixing sulphuric acid with the fat. The manner of applying the process in our laboratory is as follows: Fifty grams of the fat for analysis are weighed into a conical flask of 100 cc. capacity. The temperature is noted and ten cc. of sulphuric acid at 66° B. at the same temperature as the oil is added. The two are stirred together for one minute. An accurate thermometer, immersed in the upper portion of the mass, stirred slowly, maximum temperature noted. The initial temperature must be at least 20°C. In order to obtain exact results it is well to make several determinations and take their mean when the variation does not exceed 2°C.

To obtain the relative sulphuric saponification, we note the temperature obtained with fifty grams of distilled water at the same temperature as the oil and ten cc. of the same sulphuric acid. The number of degrees obtained by the oil is multiplied by 100, and the product divided by the number of degrees obtained with water. This process has the advantage of giving results, nearly constant, of a somewhat different strength. I have tried the application of sulphuric saponification with semi-solid vegetable oils by warming them 2°-3° above their melting points, and the results have been very satisfactory, especially for palm-nut and coconut oil, because the difference between them and the fluid oils often amount to 45° or more between palm-nut oil and sesame oil, for example.

Iodine Number.—In the fatty bodies there are members of the saturated series, as for example oleic acid, which can absorb as many atoms of the halogens as there are lacking hydrogen for complete saturation.

The iodine number of olive oil varies between eighty and one hundred, that of arachide or peanut oil is ninety-seven, while that of seed oil is 108. These differences then allow, within certain limits, the determination of the purity of the various fats. We will give the Hubl method as follows:—

ons required :

	Grams per litre.
Alcoholic solution of iodine	50
Solution of sodium thiosulphate.....	24.8
" " mercuric chloride.....	60
" " potassium iodide	100

5) grams of fatty acids are weighed out, diluted to 100 cc. forty-two per cent. alcohol, ten cc. of the solution are taken, added twenty cc. of the iodine solution and fifteen cc. to cc. of the solution of mercuric chloride. The flask is closed and wed to stand three hours. Twenty cc. of the potassium iodide is added and the excess of iodine titrated. When the brown begins to disappear a few drops of starch solution are added and thiosulphate until the colour disappears.

ill pass in silence the other indices, such as that of acetyl, of use only to discover castor oil.

ing Point.—The freezing point is easy to determine by means of a thermometer and a freezing mixture.

ing Points of Fatty Acids.—The dry and melted fatty acids are placed into a capillary tube. After solidification the tube is placed in the bulb of a sensitive thermometer and immersed in a beaker of water, the temperature of which is raised very slowly. The reading of the thermometer is taken the instant the body passes from the solid to the liquid state.

ification Point of Fatty Acids (Titer).—The dried and melted fatty acids are placed in a tube fifteen cm. long and two cm. in diameter which is suspended in a wide-mouthed bottle with a perforated stopper.

A thermometer graduated to tenths is inserted so that the bulb touches the centre of the material. At the moment solidification begins a circular movement is given to the thermometer, stirring the mass; the thermometer is then left at rest and carefully watched till the mercury ceases to rise, the reading then taken gives the point of solidification or titer conventionally adopted.

ation.—We operate on five grams of the melted and dried fatty acids with a solution of normal caustic soda. The number of cc. of soda gives the saturation number.

ility in Absolute Alcohol.—We determine this in the following manner: The fat is neutralized by agitating in a closed separating funnel for thirty minutes, with twice its weight of 95 per cent. alcohol. After it is drawn off and the alcohol held in solution driven off by distillation, the temperature, after which it is agitated at 15°C or at a few degrees above the melting point, if solid at 15°C with twice its weight of absolute alcohol. A known quantity of this alcohol is evaporated, the residue weighed, and the quantity of oil dissolved by 1,000 grams of alcohol calculated.

(To be continued.)

ON AND THE POLLUTION OF THE SHIP CANAL

At a recent meeting of the Barton Rural Sanitary Authority, Mr. C. C. Hooley, surveyor, submitted plans for the construction of a proposed soapworks between the bed of the river Irwell and the Irlam locks on the Ship Canal at Irlam Ferry, for the Co-operative Wholesale Society. Before the Authority met and adopted these plans, he reported that it was proposed that the whole of the refuse from this manufactory should be emptied into the canal, and the clarified effluent turned into the canal. He explained to the architect that a simply clarified effluent would not meet with the approval of the Authority, whose policy it was to do all it could to prevent the fouling of the Ship Canal water, which passed through its district for a distance of six miles. He (Mr. Hooley) was informed that the Co-operative Society had entered into an agreement with the Ship Canal Company to turn the refuse from the works into the canal as proposed, and on the 29th ult. he returned the plans to the Society, with an intimation that the agreement was not satisfactory to the Rural Sanitary Authority, who was the responsible body for looking after the public health of the district, and the Ship Canal Company. The result of the correspondence was that the refuse from the works, together with the surface water, would be pumped into a reservoir to be constructed by the Society for its own use. (Mr. Hooley) further reported that a few weeks ago plans were brought to his office for the erection of twelve cottages, and the sewage was proposed to be turned into the Ship Canal by the Ship Canal Company themselves without any attempt at purification. He suggested that the attention of the Company should be drawn to the fact that unless they co-operated with local authorities in purifying the water in their canal from pollution they will not have the desired state of things that they hoped for.—The Clerk was instructed to call the attention of the Ship Canal Company to this

THE MERSEY AND IRWELL JOINT COMMITTEE.

POLLUTION BY WOOLLEN MANUFACTURERS.

A SPECIAL meeting of this Committee was held on Monday last, at the offices, Mosley-street, Manchester, at 11 a.m., to meet a number of woollen manufacturers, who were to show cause why proceedings should not be taken against them for polluting the Rivers Irwell and Mersey. In all, thirty-seven manufacturers were invited, of whom thirty-one attended. The following firms gave an undertaking to have schemes for purifying their effluents in operation at the end of three months, in which cases the Committee granted an extension of time for that period:—Heap and Sons, Rochdale; R. Rawlinson, Rawtenstall; R. Ashworth, Bridgend, Waterfoot; R. Ashworth, Rawtenstall; Hardman Bros., Rawtenstall; J. Harwood, Littleborough; Porritt Bros. and Austin, Ramsbottom; D. Taylor, Bacup; J. Tattersall & Sons, Rawtenstall; J. Rostron, Ramsbottom; A. Thompson and Sons, Rochdale; J. Tunnicliffe, Rochdale; J. Schofield and Sons, Buckley Mills, Rochdale; W. Shaw and Sons, Rochdale; W. W. Bottomley and Co., Rochdale; J. Leach and Sons, Rochdale; R. Schofield, Rochdale; John Ashworth, Norden; J. Kenyon and Sons, Heywood; W. and R. Lord, Rochdale; R. Schofield and Sons, Rochdale; T. and C. Littlewood and Co., Low Hill Mills, Rochdale; Mitchell Bros., Rawtenstall; W. Pilling and Sons, Rochdale; J. Radcliffe and Co., Green Mill, Rochdale; J. Kershaw, Wardle, Rochdale.

The pollution in most of these cases was of a serious nature. In the case of R. Ashworth, Waterfoot, there were two mills, one of which was very awkwardly situated. The Chief Inspector (Mr R. A. Tatton), suggested that tanks should be put in the cellars where land was unavailable, as other firms had done. The effluent from the other mill contained 581 grains per gallon of total solids, of which 409 grains were in suspension. It gave off sulphuretted hydrogen. J. Harwood, of Littleboro', was endeavouring to get the Local Board to take his effluent into the sewers, but promised to stop the pollution within three months if the Local Board would not take it. The total solids in the effluent were 677 grains per gallon, of which 388 were in suspension. Messrs. J. Tattersall & Sons had eight tanks at work, but they used no precipitant, and their tanks were too small. The effluent was a very bad one, containing 1,354 grains of total solids, of which 140 were in suspension, and 1,214 in solution. Mr. Tattersall stated that three new tanks were being constructed, and he was willing to do his best to please the Committee, but wanted to know what they would be pleased with in the way of an effluent. J. Rostron's effluent was also a bad one, giving off sulphuretted hydrogen, and containing total solids to the extent of 918 grains per gallon, 609 being in suspension, of which 528 were organic matter. The works of S. Bery were closed, and it was explained to the Committee that they were not intending to start again yet. J. Tunnicliffe had two tanks and filters, but they were not at work properly, and the dye water was not treated. Messrs. J. Kenyon and Sons stated that though they were treating their effluent at Pilsforth, they were not going to such expense again; they would rather close the works. The effluent was bad undoubtedly, but they wanted to find a reasonably cheap method of treating it. (The effluent contained 1,420 grains per gallon of total solids, of which 703 were in suspension and 717 in solution.) They should like to know what was the standard of purity they had to work to. If the Committee only wanted a satisfactory effluent, what did they consider satisfactory? The Chairman stated that the pollution existed and had to be stopped; to do this the best practicable means had to be adopted. The following cases were adjourned till November 6th owing to special causes:—E. Leach and Bamford Bros., Wardle, Rochdale; J. Chadwick, Littleboro'; Geo. Clough, Heywood; and W. Hastings and Sons. The clerk was instructed to communicate with the Rochdale Corporation in regard to this case. The Committee were also informed that though several manufacturers were depending on the Corporation taking their effluents, the Corporation intended issuing a notice soon to all manufacturers that they must treat their effluents before they would be taken into the sewers. The works of Messrs. Stott, of Wardle, were closed. Messrs. Mitchell Bros. pointed out that they had done a good deal towards carrying out the Act, but were so very awkwardly situated that they could not complete works in three months. After some discussion, a term of three months was allowed, provided the works were commenced at once, and everything that it was possible to do pushed forward. R. Schofield had two mills, one the Watch Hall mill, for which three months were allowed to complete arrangements for disposing of the effluent. The case of the other works (Well-i'-th'-Lane) was adjourned to November 6th. In all twenty-six manufacturers were allotted three months in which to get purifying processes in operation. Five cases were adjourned. Four manufacturers did not attend, and the works of two were closed.

CONSENT OF LOCAL GOVERNMENT BOARD TO PROSECUTIONS.

Notice was given to the Committee by the Deputy Clerk that the Local Government Board had given its consent to the prosecutions of Messrs. Jowett and Waterhouse, Grimbs Brewery, Royton; Mr. H. Whitehead, of Elton, Bury; and Messrs. Rumney and Co., Ramsbottom; concerning which cases inquiries have been held by Arnold Taylor, Esq., Local Government Board inspector. (*C.T.J.*, 330, p. 179)

Our Book Shelf.

ILLUSTRATED CATALOGUE OF PUMPS AND HYDRAULIC MACHINERY.

377 P.p. Frontispiece and Index. Manchester: W. H. Bailey and Co., Ltd., 1893. 6s.

This catalogue is one of the most profusely illustrated pump catalogues we have seen for some time, and is nicely got up in brown cloth boards, being excellently printed. In it is described all the various pumps and accessories made by Messrs. Bailey and Co., of Salford, along with the code words by which the pumps, or any part of a pump, can be ordered.

The pumps which are described cover a large range. To begin with we have a great variety of positive acting pumps for pumping feed-water to boilers, and salt water. Compound condensing pumps for water-works, and triple expansion pumps; also duplex pumps suitable for sewage, and double-acting low-lift pumps for breweries, tanneries, and chemical works.

Then there is the "Denaby" sinking pump for lifting water from the bottom of mine shafts, etc. The swivel-valve donkey pump, which can be worked in any position, is another useful pump. The "Aqua Thruster" made by this firm is very well known, and is portrayed in a number of ways, showing the uses to which it can be put.

Again, there is a goodly collection of all kinds of power pumps, of which the "Cymric" is the most noteworthy, and can be worked on the tail-rope plan; barrel pumps; plunger pumps for tar and ammoniacal liquor; chain pumps, centrifugal pumps, and beer engines. In connection with the needs of chemical works there are power and steam hydrochloric acid pumps, and like pumps for sulphuric acid and copper sulphate solutions.

A handy and portable means of raising water is to be found in the steam jet pump made by this firm. There are also injectors and ejectors for exhausting and filtering, and moving gas liquor, and bleaching liquors, &c.

Of air-compressors several forms are shown, a handy type being those used in the Claus sulphur recovery process at gasworks. The anti-types of these pumps, namely, vacuum pumps, are presented in various sizes and powers, special attention being given to pumps for vacuum pans and double and triple effect evaporators.

Interesting details about the "Friedrich" steam motor, which is a very compact steam motor and boiler in one, are given, as well as of the hot-air engines, which are made by the firm in both vertical and horizontal forms. In connection with motors there is an assortment of rams, water motors, and turbines; water motors being useful for a number of purposes where gas engines are not admissible, as in spirit stores, &c.

In addition to the foregoing we find a host of other appliances, such as cement and sanitary-pipe testing machines, still water heaters, indicators of all kinds, tide gauges, hydraulic rams and lifts, valves, grids, governors, cocks and couplings, pipes, and fire hose. A few tables are appended, though there is less data than is often found in catalogues of this kind.

A well-compiled index concludes a most useful and complete catalogue, which will constitute a convenient source of reference to all requiring pumps for various purposes.

ILLUSTRATED CATALOGUE OF PHYSICAL APPARATUS.—373 pp Index. Birmingham:—Philip Harris & Co., Ltd., 1893.

This catalogue is much after the style of the last publication of this firm made in 1889, and dealing with Chemical and Physical apparatus. Wisely recognising the scope of both chemical and physical apparatus, the firm have now issued a splendid catalogue of purely physical apparatus, which contains about six thousand illustrations. Many new diagrams and forms of apparatus are to be found. Two hundred and sixty pages are devoted to electrical apparatus, including all kinds of electrical machines, galvanic apparatus, telephones, batteries, bells, pushes, dynamos and motors. Hydrostatics are well provided for. Apparatus for demonstrating all the chief laws of heat is provided, including a collection of freezing machines. Light has been cared for equally well, and the list of optical lanterns and objectives is as comprehensive as can be desired. About thirty pages are devoted to mechanical apparatus, which includes a number of models illustrative

of mechanical principles. Gas engines and the Alpha gas making apparatus are included in this section. Pneumatics and sound may be referred to at one and the same time. Under the former heading there are some good vacuum pumps shown.

There then follows a collection of various diagrams, models, apparatus for illustrating physiological, botanical, and osteological lectures, anatomy, and crystallography. A great number of barometers are also shown.

Some useful information is to be found in the price list of compressed oxygen, hydrogen, coal gas, and carbon dioxide, full particulars of conditions under which cylinders can be obtained, refilled, and being set forth. We looked in vain, as instructed in the text, for missing illustration on page 334, but otherwise this catalogue singularly free from faults of this kind, and any such slight defects, more than compensated by the conveniences of such an excellently illustrated and considerably compiled catalogue.

AGRICULTURAL NOTES.

THE PREVENTION OF POTATO DISEASE.

ACCORDING to the Board of Agriculture, the experiments made in 1892 with *houillies* as a preventive against the attacks of *phythothena infestans* were, on the whole, satisfactory. The following information upon the composition of these mixtures will be found useful:—Taking first the *houillie bordelaise sucrée*, or *houillie* molasses, recommended by M. Girard as making the *houillie* adhere to the leaves, the best mixture consists of 20lb. of sulphate of copper, 20lb. of lime, unslaked, 20lb. of molasses, 100 gallons of water.

The molasses is first mixed with water in a wooden tub, and the slaked lime is added to this. The sulphate of copper is dissolved in a separate wooden tub full of water, being first put in a bag of coarse sack suspended over the side; the solution is then added to the lime and molasses. As Dr. Voelcker points out, an intense blue colour is obtained if the *houillie* is properly prepared. If the molasses is put first and the sulphate of copper and lime added, sub-oxide of copper is formed, and the mixture becomes yellow and then red, does not appear, however, from the various experiments recorded, the *houillie bordelaise sucrée* adheres better to the leaves than ordinary *houillie bordelaise*, nor that it has any special advantage over this.

There have been several modifications in the manufacture of ordinary *houillie bordelaise*. The original formula, and that adopted in experiments of the Royal Agricultural Society, was 20lb. of sulphate of copper, 10lb. of lime, 100 gallons of water.

In 1892 M. Girard stated that it was better to use the same weight of lime as of sulphate of copper, and this prescription was adopted by Voelcker, at Woburn, and by Messrs. Carter and Co. at Bromley, that their formula was 20lb. of sulphate of copper, 20lb. of lime, 100 gallons of water.

THE EUROPEAN BEET SUGAR HARVEST.

Statistics are now appearing on the European beet-root sugar crop for the past year, the latest being given in Licht's monthly circular published at Berlin. This puts the estimated crop for the present campaign, compared with the actual crops of the three previous years as follows:—

	1892-93.	1891-92.	1890-91.	1889-90.
	Tons.	Tons.	Tons.	Tons.
German Empire	1,325,000	1,108,156	1,331,965	1,264,400
Austria-Hungary	780,000	786,566	778,473	753,000
France	590,000	650,377	694,037	787,000
Russia	460,000	550,994	544,162	435,000
Belgium	180,000	180,337	205,623	271,000
Holland	70,000	46,815	76,635	69,000
Other Countries	97,000	88,635	80,000	80,000
	3,402,000	3,501,920	3,710,895	3,633,400

It will thus be seen that, as compared with last year, there is estimated drop of about 100,000 tons, and as compared with 1890 of over 300,000 tons.

PERSONAL.—We learn that Mr. W. Brown, of 11, Dale-st. Liverpool, is now assisted by Mr. George Stevens, who until he practised in Liverpool as an analytical chemist. Mr. Stevens is now known in connection with the chemistry and analysis of sugar. Mr. Mellor, of the Magnesium Metal Co., Patricroft, has accepted mayoralty of the borough of Eccles for the ensuing year. Mr. Bock and Robertson have been elected members of the Manchester Chamber of Commerce. Mr. Brunner, M.P., is contributing £500 a week to the relief of the distress in the Cheshire salt district.

TOMATOES COLOURED WITH EOSIN.

By the instructions of Dr. Wiley, some experiments have been made by Messrs. McElroy and Bigelow, at the laboratory of the U. S. Department of Agriculture, on samples of colouring supplied to firms for the purpose of colouring artificially canned tomatoes. The first was first drawn to the matter by a sample of tomato colour from a Cincinnati firm being sent to the department for examination, following details of the experiments made in this connection were frequently communicated to the *Journal* of the American Chemical Society.

The sample was in a small bottle bearing the label "tomato colour." It consisted of a thin red liquid, showing a strong fluorescence when treated with hydrochloric acid, a floccy orange precipitate formed, and the liquid after filtration showed no colour even when made alkaline. The precipitate was freely soluble in alkalies, and it reproduced a red liquid resembling the original. It was soluble in ether, giving a pale yellow solution. A portion of the sample was mixed with lime evaporated to dryness, and the residue was white. A water solution of the resulting mixture of ash and acidifying with nitric acid, gave a heavy precipitate with silver. Another portion of the solution treated with bleaching powder and hydrochloric acid liberated a substance which was taken up by ether, imparting to it a strong yellow colour. A portion of the original sample was reduced with sodium amalgam and to the nearly colourless liquid a drop or two of dilute permanganate solution added. A liquid having a deep green fluorescence was produced. The fluorescence was so strong that the liquid was nearly black in view of the reactions cited, the substance under examination pronounced to be an aqueous solution of brom-eosin (tetra-brom-eosin).

One of the most extensively used of the so-called aniline dyes is eosin. The statement has been made that it is sometimes employed for colouring candy, and more rarely, other articles of food. Its use for colouring tomatoes, however, has never been published to our knowledge. It is well adapted for this purpose inasmuch as in a very dilute solution it gives a yellow colour not unlike that of the liquor which is used for canned tomatoes. The addition of a single drop of the eosin to the liquid contents of a can of tomatoes was found to change the colour at all, but to cause a marked change for the appearance.

METHOD OF ANALYSIS.

On the suggestion of Dr. Wiley an effort was made to work out a method by which brom-eosin could be discovered when added to canned tomatoes. The readiest foundation for such a method appeared to be that eosin can be readily abstracted from acidified aqueous solutions by ether, and that from this ether solution it in turn can be abstracted by dilute alkali. The solution so obtained has a characteristic fluorescence.

A tomato was taken, mashed, and water added. The mixture was divided into two parts and to one a drop of the tomato colour was added. Both portions were then placed in dishes on the water bath for three hours, replacing the evaporated water from time to time. At the expiration of this time the liquid part was strained off through cotton bags. The volumes obtained in each dish were about 150 c.c. They were acidified with hydrochloric acid, and the aqueous portion was then drawn off and the ethereal solution washed with water. After separating from this wash water, twenty c.c. of dilute caustic soda were placed in each funnel and the shaking continued. The alkaline liquid in one funnel then showed a strong green fluorescence. The colour was almost exactly as intense as that produced in a similar amount of the dilute alkali by a drop of eosin. This was the quantity used. On once more separating the ether remaining in the separatory funnel with alkali an extract was obtained, showing a barely perceptible fluorescence. From this it was evident that the first portion of alkali had abstracted practically all of the colouring matter. From the other tomato, the one to which no colouring matter had been added, an alkaline liquid obtained had a slight yellow colour, but no fluorescence.

Another tomato was next procured, opened, the contents strained off, and the resulting liquid divided into two parts. To one portion a drop of the eosin solution was added. Both portions were then washed and extracted with ether. The ether extract in both portions showed a light yellow colour. The ethereal solutions were then washed several times, and then shaken with dilute alkaline solutions. These solutions were dark coloured. Neither showed fluorescence. The ether retained some colour. This, of course, was not due to eosin, as was just shown, is quantitatively extracted from solution by alkali. The alkaline liquids were acidified and then extracted, using fresh ether. Nearly all the colouring matter of the acid liquid was extracted by the ether. After washing

the ethereal liquids with water several times they were shaken with more alkali. The resulting solution in one case showed a faint and badly-defined fluorescence. The colour of the liquid was too dark, however, to permit any certain recognition of the phenomenon. The ether was not wholly decolourised. It was thrown away, and the two aqueous solutions acidified and extracted with fresh ether. The new ethereal solutions, after washing with water, gave with alkalies a light-coloured solution, which in one case was unmistakably fluorescent. In the other sample no fluorescence whatever was perceptible. It was therefore evident that the presence of eosin could be recognised with certainty in the presence of the natural colouring matter of the tomato even when existing in but small quantity.

Other experiments were made in which larger quantities of the tomato colour were used—two, three, and four drops to 300 c.c. of tomato juice. In every case recognition was positive. As a rule one or two extractions were sufficient to allow the fluorescence of the eosin to be easily recognised. Trials were made of the fluorescein reaction proposed by Baeyer for the recognition of eosin to see if it offered any advantage, but such was not found to be the case. The test for brom-eosin, of which the sample under examination consisted, is sufficiently delicate and characteristic to render further complication unnecessary. If iod-eosin were used by the canner instead of brom-eosin it might then be necessary to resort to Baeyer's test, for iod-eosin does not fluoresce, and the colour is not sufficiently distinctive to permit its recognition. Iod-eosin, however, is higher in price and not so well adapted for use in canned tomatoes, for a slight fluorescence is rather desirable in this case.

To recapitulate, the method we propose for recognizing the presence of brom-eosin in canned tomatoes is to strain off the solid matter and to the juice add hydrochloric acid and extract with ether. The ethereal solution is to be washed and shaken up with dilute solution of caustic soda. Should this solution be strongly coloured, it is to be acidified and extracted with ether, the ether shaken up with dilute alkali and the alternate extractions with ether and alkali repeated till the presence or absence of eosin is demonstrated. The natural colouring matter of the tomato is not completely separated from acid solution by ether nor is it completely abstracted from ether by alkali, so that by repeating the process often enough, it is separated to a sufficient extent to permit the recognition of eosin. Eosin is extracted quantitatively in both cases. Should it be desired to apply Baeyer's method in any case in which the presence of iod-eosin may be suspected it can be done by adding to the final alkaline liquid some sodium amalgam, gently heating, and finally adding a drop or so of very dilute solution of potassium permanganate. In the presence of either iod-eosin or brom-eosin green fluorescence is developed. This test, however, presents no advantage in the case of brom-eosin.

EXPORTS OF PETROLEUM FROM U.S.A.

THE Chief of the Bureau of Statistics, Mr. S. G. Brock, gives the exports of petroleum and petroleum products from the United States for the month of July, 1893, and during the seven months ending July 31st, 1893, as follows:—The total value of the shipments for July was £721,492, as against £599,996 in July, 1892; and for the seven months ending July 31st, 1893, £4,603,041, as opposed to £4,628,023 for same period ending July 31st, 1892. The shipments were as follows:—

CRUDE PETROLEUM.				Gallons.
Total for July, 1893	..	..	..	10,758,868
" " " 1892	..	..	..	5,261,478
Total for seven months ending July 31st, 1893	..	..	..	62,034,957
" " " " 1892	..	..	..	49,254,132
NAPHTHAS.				
Total for July, 1893	..	..	..	989,207
" " " 1892	..	..	..	905,291
Total for seven months ending July 31st, 1893	..	..	..	7,027,361
" " " " 1892	..	..	..	6,056,449
ILLUMINATING.				
Total for July, 1893	..	..	..	61,307,038
" " " 1892	..	..	..	44,757,770
Total for seven months ending July 31st, 1893	..	..	..	383,784,798
" " " " 1892	..	..	..	315,210,479
LUBRICATING.				
Total for July, 1893	..	..	..	3,007,699
" " " 1892	..	..	..	3,244,589
Total for seven months ending July 31st, 1893	..	..	..	17,345,524
" " " " 1892	..	..	..	19,441,037
RESIDUUM.				
Total for July, 1893	..	..	..	51,660
" " " 1892	..	..	..	1,302
Total for seven months ending July 31st, 1893	..	..	..	2,538,920
" " " " 1892	..	..	..	2,996,388

VINEGAR ADULTERATION PROSECUTIONS.

AT the Manchester City Police-court on Wednesday, Mary Lindsay, grocer, was summoned under the Food and Drugs Act for selling adulterated vinegar.—Inspector Holland stated that on the 18th Sept. he purchased a pint of vinegar at the defendant's shop, for which he paid twopence. That was the average price. He asked for malt vinegar. On the end of the barrel from which the defendant took the vinegar was a label bearing the words, "Vinegar, warranted unadulterated.—Grimble and Co., Cumberland Market, London." In numerous instances in which he had purchased vinegar, at other shops, at the price paid in the present instance, it had been tested and found genuine.—Mr. C. Estcourt, city analyst, said he had analysed the sample submitted to him of vinegar bought by the Inspector and found it to contain 30 per cent. of added water.—In answer to Mr. Broadsmith, the witness said he had tested the vinegar for acetic acid, and found it contained 3.3 per cent. He should be surprised to learn that in 1874 the Society of Public Analysts agreed to recognise 3 per cent. of acetic acid as the minimum standard of strength for vinegar. He had no recollection of such a standard being adopted, and besides, in nineteen years, the views of analysts as to the proper quantity of acetic acid to be allowed in vinegar had changed. It was quite possible that Professors Chapman and Graham, of London, had also made an analysis of the vinegar and had found it to contain 3.14 per cent. of acetic acid. No fixed standard had been laid down by the Act of Parliament. He came to the conclusion that the sample in question was adulterated by comparing it with the ordinary vinegar of commerce which contained from 4.6 to 5 per cent. of acetic acid. Mr. Broadsmith maintained that the prosecution had failed absolutely. They were not summoned for selling something that was not the article asked for, but for selling something which, in the opinion of the analyst, contained 30 per cent. of added water. He had in his hand the certificates of Professors Chapman and Graham (which he could prove, if necessary), who had analysed one of the sealed samples of the vinegar bought by Holland from the defendant. They both certified that it was absolutely pure. The vinegar was manufactured by Messrs. Grimble specially to compete with the vinegars sold at a low price by other makers, and which were largely adulterated with wood acid. The water had simply been added to the vinegar to lower its strength, but never below the point fixed by the Society of Public Analysts in 1874—namely, 3 per cent. of acetic acid—and to render it fit for use as an article of commerce. The defendant sold the vinegar exactly as she received it from Messrs. Grimble, and he contended that the printed warranty on the barrel was sufficient to exempt her from the provisions of the Act.—Mr. Grant Malcomson, managing director of Messrs. Grimble's Brewery Company, Limited, London, said the vinegar in question was the very lowest in quality that their firm manufactured. They were compelled to make it to compete with those firms who made vinegar from wood acid at a very low price. They had, however, always kept the strength of the vinegar above the 3 per cent. minimum recognised by the Society of Public Analysts. The vinegar in question was absolutely pure, and the water put to it was necessary to render it fit for sale as an article of commerce. In the result the Bench imposed a fine of 5s. and costs. They refused to state a case.

Five other summonses were heard for similar offences, and fines amounting in all to £2 were imposed.

Trade Notes.

WATERED STOUT.—This week at Thirsk, Thomas Tweedy, a brewer, was summoned for applying a false trade mark to "Guinness's Extra Stout," at Carlton Miniott, on September 9. According to the analyst's certificate, nearly eight gallons of water had been added to 36 gallons of the stout. The defendant was fined altogether £24.

DEATHS FROM EATING MUTTON.—An inquiry was held last week concerning the death of two inmates of the Greenwich Union Workhouse, who had succumbed to vomiting and diarrhoea after partaking of boiled mutton. No explanation could be arrived at from the medical evidence, and the inquiry was adjourned to allow the viscera to be analysed in both cases.

A TOWN IN DARKNESS.—Owing to the difficulty in procuring coal, and the unsuitability of material now procurable for gas-making, Burnley has very largely been in darkness since Friday, last week. On Sunday scarcely any streets were lighted, and places of worship used candles. On Saturday all the shops and hotels in the centre of the town were placed in darkness. The performance was stopped at the theatre, and the streets were not illuminated. Several mills are stopped for coal.

THE PETROLEUM BARREL INDUSTRY.—Owing to the scarcity of petroleum barrels in this country, caused by the practice of bringing oil in bulk by tank steamers, a new industry has sprung up in barrel-

making. The pioneers of the new plant are Messrs. Rans Co., Chelsea. It is stated that the new machinery is capable of making out 1,000 barrels daily with the assistance of a hand cooper.

THE WHITE LEAD INQUIRY.—A special committee of the Home Office, consisting of Dr. Dupré, Mr. Tennant, private to the Home Secretary; Mr. Gould, superintendent inspector of and others, have been conducting the inquiry at Wolverhampton reference to the conditions connected with the manufacture of lead at the various factories in the town, and as to the alleged case of female operatives from lead poisoning brought before the Home Secretary a few months ago.

PURIFYING SALT.—An American process, which has been in this country, for the purification of salt consists in first heating crude salt in a sloping furnace coated with an infusible basic lining, finally in a crucible, till the salt is fused. A small quantity of alkaline earth is then added to act on the impurities in the basic lining playing a similar part to a certain extent. The salt is then injected through an atomiser into a chamber in which it circulates. The salt is thus formed into spheroidal nodules cooled. It collects in this form in a series of hoppers at the bottom of the chamber. Filtered air is also admitted into the top of the chamber.

THE ASHTON-UNDER-LYNE SEWAGE WORKS.—At the last meeting of the Ashton Town Council the corporate seal was affixed to an agreement between Mr. A. C. Boyd (agent for the owners of the Dukinfield estate) and the Corporation, for the purchase of the Plantation Farm. A resolution was also adopted that the Council make application to the Local Government Board for the Board's sanction to the borrowing by the Corporation of £40,000 for the purpose of purchasing the Plantation Farm as sewage works, and for the purpose of defraying the costs of laying out the site for sewage disposal purposes, and of erecting and constructing sewage works.

A TREMENDOUS EXPLOSION OCCURRED.—People don't seem to have grasped the fact yet that if you hunt for a gas leak you are generally hunting for an explosion. At the offices of the Refractory Company, Nelson, there was a leakage of gas which had entered the vestibule since the premises were closed on the Saturday. A clerk was searching for the leakage with a light in a communicating with the vestibule, when a tremendous explosion occurred. The vestibule was wrecked, and the office windows blown a considerable distance into the street. The adjoining room was damaged, and two persons in the room escaped without injury. Particulars of the condition or whereabouts of the assiduous leak-hunter are forthcoming.

Market Reports.

TAR AND AMMONIA PRODUCTS.

The coal strike has certainly caused prices to advance in the coal tar products, notably creosote and burning oil, but the description, but the experiences of those who have tried it do not warrant the continuance of its use. From several sources we have gained the information that the use of creosote in boilers at its present price is equal to coal at 30s. per ton, and militates against its universal introduction. Benzol is reported but this may be only report, as the quantity which could be obtained from Germany is practically unlimited, and we shall have more from this source before long.

The sulphate of ammonia market is not in such a bad way as dealers wish us to believe. The fact is many of them have contracts running, and have to supply themselves. Supplies are small, and there is no pressure to sell, so that the prices of £12.15s. Liverpool and Hull, and £12.15s. Leith, are to be taken as *salis*. Becton may be quoted as £13. for prompt, and London makes £12.15s.

MISCELLANEOUS CHEMICAL MARK

There are no material changes to report. Prices generally rather easier a few days ago, owing to the outlook in the coal being brighter, but the settlement being prolonged, it has a firmer tendency to again prevail. Bleaching powder, £8 7s. 6d., softwoods, rails, makers' works. Caustic soda request, current quotations are:—f.o.b. Tyne, 77%, £12.; 74%, £12.; 70%, £11.; 60%, £10.; cream, 60%, £9.15 10-ton lots and upwards. In caustic soda ash stocks are abundant and prices are very firm—£4.15s. per ton on rails is to be taken. Ammonia alkali, 58%, £4. per ton. Saltcake st

ly unsaleable. Soda crystals in moderate request at £3. 1s. 6d. and £2. 17s. 6d. bags. Chlorate of potash dull at 8½d. n at 8¾d. to 9d. Recovered sulphur quiet at £4. 2s. 6d., kers' works Sulphate of copper moves fairly well at former Lead salts dull Acetates of lime are firmly held, and prices g: brown £7., grey £11., per ton. Acetic acids have, of ollowed, and much better prices are being asked and realized do not care to sell far forward at present prices, as a further is anticipated. Ammonium salts keep in good demand, and e firm. Muriate, £22. 10s. Carbonate, 3¼d. per lb. Salic, 35s. to 37s. per cwt. White powdered arsenic is only in limited quantities—£13. 7s. 6d. Garston is general quatorax rather slow of sale at £27. to £29, according to quality, acids unchanged. Yellow prussiate of potash finds steady sale at 8¾d. per lb. Oxalic acid firm, and in fair request at 3d. per lb.

REPORT ON MANURE MATERIAL.

g the week the market has been quiet, and prices are barely ed. For Continent 8¾d. per unit paid for 75/80% Florida te rock, for shipment, but c.i.f. to good United Kingdom ports ould not be buyers at over 8½d. per unit. For the present as for Peace River and South Carolina River rocks are mainly Buyers of River Plate bones still hold back, and closing October-November shipments is not over £4. 11s. 3d. to good Kingdom ports direct. Sales of crushed Calcutta bones have de at £4. 12s. 6d. ex ship London, but for crushed Kurrachee, ment, £4. 15s. would have to be paid ex quay Liverpool. may bone meal, for shipment, £4. 17s. 6d. now asked. of soda is quiet in all positions. On spot 9s. 3d. would buy ality. Due cargoes are worth barely 9s, and, to effect sales, s. 1½d. would have to be accepted for October-November s. is nothing special to report in miscellaneous material.

THE METAL MARKETS.

DON, WEDNESDAY.—Pig iron inactive. Scotch warrants closed d. cash, Middlesbrough 34s 3¼d. cash, and hematite 44s. 4½d. steady: Chili bars, G.O.B.'s and G.M.B.'s closed at £41. 11s. 3d. 18s. 9d. cash, and £41 18s. 9d. to £42. 6s. 3d. three months. et: Straits closed at £78. 2s. 6d. to £78. 12s. 6d. cash, and s. 6d. to £79. 2s. 6d. three months; Australian, £79. 2s. 6d.; ingots, £83. to £83. 10s. Lead, firm: Spanish, £9. 11s. 3d.; £9. 12s. 6d. to £9. 17s. 6d. Silesian spelter: Ordinary, s. 6d. Nickel, 1s. 8d. Antimony, £38. Quicksilver: First £6. 10s.; second hands, £6 9s. Copper shares, dull: Cape, 1½. Copiapo, 1½ to 1½. Libiola, 2¼ to 3. Mason and ½ to 1¼. Rio Tinto, 13½ to 13½. Tharsis, 4½ to 4½. VERHAMPTON, WEDNESDAY.—There was a rather better day, the ironmasters encouraging the opinion that the coal e would soon close and that the demand will then revive. orders are somewhat more plentiful, and the works can see siness ahead. Prices are still advancing, and a rise of 5s. per ounced by North Staffordshire ironmasters. South Stafford-erchant bars are up 7s. 6d. to 10s. compared with the prices he stoppage. Sheets are £7. to £7. 5s., hoops £6. 10s., bars £6., Derbyshire pigs 46s., Northampton 45s, hematites

SGOW, WEDNESDAY.—Market easy, with small business. lone at 42s. 0½d. cash; closing with buyers at 42s. 1d. cash, sk 42s. 1½d. Middlesbrough done at 34s. 6d., 34s 3d., and d. cash; closing with buyers at 34s. 3½d. cash, sellers ask d. Cumberland hematite closes with buyers at 44s. 4½d. llers ask 44s. 6d. Middlesbrough hematite closes with buyers 3d. cash, sellers ask 43s. 6d.

LIVERPOOL OIL AND COLOUR MARKET.

WEDNESDAY.

—Palm oil is rather quieter. There is not much offering, but me time the inquiry is not over brisk, and sales have been all. Olive is steady; prices range from £32. 10s. to £41, g to quality, and a fair business has been passing. Linseed is o-day, having been steady all the week, and 22s. 3d. to 22s. 6d. for Liverpool makes in export casks is now asked. Cotton-ving to scarcity, is dearer, and 22s. 9d. to 23s. 9d. per cwt. is value, but there is very little indeed doing at the advance. oil is steady, but not so firm as last week. Prices for good Calcutta are unaltered at 2½d. to 2½d. First pressure French igned at 2½d. to 2½d. per lb. Tallow is quiet and shows

nothing in the way of change. Resin is steady for common with a fair request at from 3s. 7½d to 3s. 9d. per cwt. Spirits of Turpentine are dearer and in fairly good request at 21s. 9d. per cwt. Petroleum is rather unsettled as regards prices; Russian refined was inclined to move in favour of buyers, but transactions below the official figures are not allowed to transpire.

COLOURS are steady without alteration in prices. Ochres: Oxfordshire, common, £10., medium, £12., best, £15.; Derbyshire, common, 40s.; medium, 50s., best, 60s.; Welsh, best, 70s., seconds, 50s., and common, 18s.; Irish, Devonshire, 40s. to 45s.; French, J.C., 55s. to 60s.; M.C., 65s. to 67s. 6d. Umber: Turkish quiet; Devonshire, 50s. to 55s. White lead, red lead, and oxide of zinc unchanged. Venetian red, £6. 10s. to £10. Cobalt: Prepared oxide, 9s. 9d.; black, 9s.; blue, 6s. Zaffres: No. 1, 3s. 6d.; No. 2, 2s. 6d. Oxide of iron: Common, £6.; medium, £10.; finest, £20. Zinc oxide, £23. to £25.

WEST OF SCOTLAND CHEMICALS.

GLASGOW, TUESDAY.

The late steady drop in sulphate of ammonia seems at last to have received something like a check, and, as compared with those of last week, prices are fully maintained. Prompt value may be stated at £12. 15s. to £12 17s. 6d. f.o.b. Leith. Forward dealing is idle, but within the week the price of £12. 12s. 6d. has been done, November and December delivery. Paraffin and mineral oils are all in very satisfactory demand, the higher gravities of lubricants excepted Gas oil (865°) shapes upwards owing to the steady demand, but makers are chary of venturing on anything like a substantial advance, knowing that the new outlet for this residuum is not held by a very strong tie as yet. Scale and wax continue firmer, though nominally unchanged in price, and the strength of the continental demand is re-acting beneficially on the home market. General chemicals are quiet, bleaching powder and soda crystals being both cheaper.

Chief prices current are:—Soda crystals £2. 10s. to £2. 12s. 6d. nett, Tyne; soda ash £3. 17s. 6d. nett, Tyne; white alkali 48/52 £4. 15s. to £5. 5s. nett, Tyne; alum in lump £5. nett, Glasgow; caustic soda, white, 74°, £12. 5s., 70/72° £11. 5s., 60/62° £10. 5s., and cream 60/62° £10. all nett, Liverpool; bleaching powder £8. to £8. 5s. nett Tyne; saltcake, 22s 6d.; borax, English refined, £30., and boracic acid, £37. 10s. nett, Glasgow; bicarbonate of soda, 5-cwt. casks, £6. 15s., and 1 cwt. casks £7. less 2½%, Liverpool; bichromate of potash, 4½d. nett, for Scotch and English deliveries (for export, 4½d. nett f.o.b. Glasgow); bichromate of soda, 3¾d. nett, for Scotch and English deliveries (for export, 3½d. nett, f.o.b. Glasgow); chlorate of potash, 8½d. less 5%, Liverpool; nitrate of soda, 9s. 4½d.; sulphate of ammonia, £12. 15s. to £12. 17s. 6d. prompt, f.o.b. Leith; salammionic, first and second white, £37. and £35. less 2½% any port; sulphate of copper, £15. 15s. less 5% Liverpool; paraffin scale, hard and soft, 1¾d. per lb.; paraffin wax 120° semi-refined 2¾d.; paraffin spirit (naphtha) 4½d. a gallon; paraffin oil, burning, standard No. 1 grade, 5d. per gallon at works, for Scotch buyers (English sales ½d. to ¾d. lower); ditto (lubricating) 865° £4. 7s. 6d., 885° £4. to £5. 10s., and 890/895° £4. 12s. 6d. to £6. Week's imports of raw sugar at Greenock were 12,359 bags.

HULL PAINT, OIL, AND COLOUR REPORT.

TUESDAY.

OILS.—The situation here can hardly be said to have improved when judged from the exports of coal; taking the three Humber ports the exports were last week 80 tons against 73'645 tons the same week a year ago. Still an improvement is manifest in the imports of grain and seed, also of tallow, the latter being 1,549 cwt. The exports of linseed and cotton oils show a falling off compared with the same time a year ago, of the former the export was 874 cwt. against 1,234 cwt., and of the latter 4,172 cwt. against 9,844 cwt.—this however, being exceptionally high. Linseed oil has been dull during the week, and closes with a firmer tone again; spot is 20s. 3d. per cwt. naked, and there are buyers for the month at 20s.; October-December, 19s. 7½d., and January-April, 19s. 3d. to 19s. 4½d; casks 17s. 6d., and barrels 22s. 6d. per ton extra. Refined cotton oil has recovered in near positions; there are buyers at the time of writing at 21s spot, and sellers asking 21s. 3d, whilst month is quoted 20s. 9d. to 21s; November-April steady at 18s 1½d. Crude: spot, 18s. 6d. buyers; November-April, 16s. 7½d. buyers. Refined rape, in casks, 24s. 3d. per cwt. Coast cod oil, scarce, £17. 10s. to £19. per ton. Herring oil, £16. 10s. Sod oil, scarce, £15 to £17. per ton. Pine oil, £7. per ton. Anti-friction grease from £6. Engine oil, 1s. 3d. to 1s. 9d. per gallon. Cylinder from 1s. to 2s. per gallon. Tar oils are much inquired for and difficult to buy.

CAKES.—Linseed cakes firm with, however, a quiet demand: 95% pure, £8. 15s. to £9. per ton; ordinary, £7. 5s. to £7. 10s. per ton; Russians, £8. 10s. Cotton cakes steady; the demand although only moderate at present high prices, being in excess of the supply, and seems likely to be for the next few weeks: Best makes, spot, £5. 15s. to £5. 17s. 6d.; December to March, £4. 15s. to £4. 17s. 6d. Rape cakes: Black Sea, £4. 7s. 6d.; East India, £4. 15s. Oil Feed cakes, £5. 12s. 6d.

PAINTS.—Nothing unusual moving, with an unaltered position of fuel. The exports of both painters' colours and chemicals each show a decrease, and are likely to do so until ships can be guaranteed sufficient cargo to come here and load, which is not the case at present, until the coal begins to be exported. Of painters' colours the exports were 587 packages against 1,874 packages a year ago, and of chemicals 1,391 packages against 3,179 packages. White and red lead unchanged. Oxide of iron, dry, £9. to £18. Venetian red, dry, £6 to £10 per ton. Oxide of zinc, £23. 10s. per ton. Ready mixed paints in various sized tins from 28s. Oak varnish from 6s per gallon. Common black varnish, £5. 10s. per ton in barrels

TYNE CHEMICAL REPORT.

TUESDAY.

Chemicals are still quiet; prices unaltered. Soda crystals, £2. 10s. per ton gross weight. High strength caustic, £11. 5s. to £11. 10s. Bleach is quoted at about £8.; sulphur, £4. 2s. 6d. per ton.

Bleaching powder, softs, £8. per ton, nett; hards, £8 5s. per ton; caustic soda, 76/77%, £11. 15s per ton, 70%, £10. 5s per 'on; recovered sulphur, 2 cwt. bags, £4. 2s. 6d. per ton; soda ash, 48%, £4. per ton, 52%, £4. 7s. 6d. per ton, 56%, £4. 15s. per ton; alkali, 36%, £3 15s. per ton; white alkali, 48%, £4. 15s per ton, 50%, £5. per ton, 52%, £5. 5s. per ton; hyposulphite of soda, in 5-7 cwt. casks, £7. per ton, ditto, in 1 cwt. kegs, £7. 15s. per ton; silicate of soda, 75° Tw., £2. 15s. per ton, 100° Tw., £3. 10s. per ton, 140° Tw., £3. 17s. 6d. per ton; soda crystals, in casks, £2. 10s. per ton gross weight, in 2 cwt. bags, £2. 10s. per ton nett weight; chlorate of potash, 8½d. per lb. less 6%; pearl hardening, £3. per ton nett; pure white sulphate of alumina, £4. 2s. 6d. per ton; blanc fixe, £7. 10s. per ton; chloride of barium, £7. 10s. per ton; carbonate of alumina, £28. 15s. per ton nett; aluminate of soda, £33. 15s. per ton nett; in 5 ton lots, £28. 10s.; hydrate of barium, £10. per ton nett.

South Durham salt: Price unchanged at 9s. 6d. per ton f.o.b. Tees. Coals: Trade is in a very unsettled state, there being different opinions as to the probable duration of the strike in the midlands. Best Northumbrian steam, about 13s. per ton; second qualities, 11s. 6d. and 12s.; small steam, 5s. and 5s. 6d. per ton; bunker coals, 9s. 6d. and 10s. Coke unaltered on a basis of 16s. per ton f.o.b.

New Companies.

A. C. Bright and Co., Limited.—CAPITAL £25,000. in shares of £1. each. This company has been formed to acquire the business of the Hawkswell Tinsplate Works in the Forest of Dean, and to carry on the business of tinsplate workers, colliery proprietors, coke manufacturers, metallurgists, manufacturing chemists, etc. The subscribers to the memorandum of association are:—Jasper Foster, 6, Gt. St. Helens, London, E.C., sec.; J. W. Hughes, 118, Bishopsgate-street, London, E.C., metal and tinsplate merchant; A. C. Bright, Cinderford, Gloucester, tinsplate manufacturer; M. Bright, Cinderford, Gloucester, married woman; A. W. M. Bright, Cinderford, Gloucester, accountant; J. M. Bright, Cinderford, Gloucester, manager; E. T. Stetcher, Cinderford, Gloucester, colliery agent.

J. C. Broadbent and Co., Limited.—CAPITAL £5,000. in shares of £1. each. This company has been formed to take over the business of

slag wool, and silicate cotton manufacturers, formerly carried on by J. C. Broadbent, Huddersfield.

Revolving Purifier Company of India Limited.—CAPITAL £5,000. in shares of £5. each. This company has been formed with a view to acquiring patents for the filtration and purification of water, sewage, etc.

The Sewage Transmutation Company, Limited.—CAPITAL £2,000. in shares of £1. each. This company has been formed to carry on the business of collecting, purifying, and dealing with sewage and sewage matters, with the view to making the same merchantable.

The Patent List.

This list is compiled from Official sources in the Manchester Technical Laboratory, under the immediate supervision of George E. Davis and Alfred R. Davis, who report professionally upon the value of Chemical Patents.

APPLICATIONS FOR ENGLISH LETTERS PATENT.

Purification of Sewage. L. Archbutt and R. M. Deeley. 18,416. October 2.
Washing Filtering Media. W. P. Thompson. 18,422. October 2.
Improvements in Paper. W. B. Daw. 18,423. October 2.
Improvements in Steam Traps. R. Newton. 18,427. October 2.
Improved Sheep Dip. R. Bramwell. 18,466. October 3.
Treating the Black Ash Residuum of Wood Pulp Manufacture. L. S. Langville. 18,519. October 3.
Removing Encrusting Matter from Steam Boilers and Preventing Dead Water. W. Lawrence. 18,534. October 3.
Improvements in the Manufacture of Paper. E. J. Lusby. 18,538. October 3.
Improvements in Filtering Materials. M. M. Bair. 18,573. October 4.
Manufacture of Carburetted Hydrogen for Illuminating and other Purposes. T. Banks. 18,574. October 4.
Apparatus for Galvanizing Tubes and Bars. G. Palmer. 18,577. October 4.
Improved Manures. W. C. Currie and W. E. Rowlands. 18,600. October 4.
Dephosphorising and Desulphurising Ores, Etc. J. B. Torres. 18,641. October 5.
Multiple-Effect Evaporators. J. N. S. Williams. 18,642. October 5.
Apparatus for Burning Creosote Oil, for Heating and Steam Generating Purposes. W. Allen. 18,656. October 5.
Manufacture of a Vegetable Disinfectant. J. G. Lorrain. 18,702. October 5.
Black Paint and Inks. R. L. Young. 18,726. October 6.
Treating Ores Containing Zinc and Antimony. H. L. Sulman. 18,744. October 6.
Bleaching and Purifying Oils and Fats. F. B. Aspinall, R. W. Hoar and G. H. Wise. 18,767. October 6.
Colouring Matters. J. Y. Johnson. 18,769. October 6.
Recovering Alkali from Waste Products. J. B. Murray and M. B. Baird. 18,786. October 7.
Disinfecting and Deodorising. C. F. Veit. 18,796. October 7.
Purification of Iron. C. Hyde. 18,806. October 7.
Concentrating Vitriol in Lead Vessels. W. Wolters. 18,831. October 7.
Protective Coatings for Iron and Steel. A. J. Marquand. 18,845. October 7.
New Alloys. S. O. Cowper-Coles and Sir Baldwin Wake Walker, Bart. 18,850. October 7th.

Gazette Notices.

PARTNERSHIPS DISSOLVED.

C. G. TARGETT and E. H. WISEMAN, under the style of Targett and Wiseman, chemists and druggists, Weymouth.
F. WILSON and J. SEFTON, under the style of Wilson and Sefton, Runcorn, builders, chemical works contractors, and quarry proprietors.
A. PEARSON and T. S. INSULL, glass manufacturers, Harts Hill, Brierley Hill, Staffs., under the style of W. Harrop and Co.

BANKRUPTCY ACTS, 1883 and 1890.

Adjudications.

BIRD, W. CULVERWELL, trading as W. C. Bird and Co., Leicester, dyer.
IBBOTSON, JANE, trading as F. Ibbotson, Wakefield, chemist and druggist.

IMPORTS OF CHEMICAL PRODUCTS

AT

THE PRINCIPAL PORTS OF THE UNITED KINGDOM.

LONDON.

Week ending October 7th.

Acetic Acid—

Holland, 101 pkgs. Beresford & Co.
" 20 A. & M. Zimmermann
" 50 Philipps & Graves

Acetic Acid & Potas'm Bicarb.—

Holland, 12 pkgs. A. & M. Zimmermann

Alkali—

France, 132 c. Arnati & Harrison

Alum—

Belgium, 24 pkgs. R. W. Greeff & Co.

Aluminium—

Belgium, 1½ t. Major & Field

Antimony—

Sydney, 24 t. Laughland & Co.
" 96 W. B. Marcus
" 45 Vivian & Co.
Brisbane, 11 L. & I. D. Jt. Co.
Cairns, 11 J. Livingstone

Asbestos—

Germany, £21 T. W. & J. Walker
France, 18 Mory & Co.
U. States, 30 W. Byford
" 28 Beck & Pollitzer
Canada, 300 H. Lambert

Barium Chloride—

Holland, 3 pkgs. Beresford & Co.
Germany, £75 Petri Bros

Barytes—			Indigo			Ochre—			Ultramarine—		
Germany,	23 cks	Y. Cartwright & Co.	U. States,	17 chts	F. W. Heilgers & Co.	France,	2 cks	Stobbs, Wilson & Co.	Germany,	12 cs.	Steinhoff, Sons & Co.
Belgium,	21	Burrell & Co.	E. Indies,	109	R. von Glehn & Sons	"	11	Beck & Pollitzer	"	24 cks.	T. Hamilton
"	24	W. Harrison & Co.	"	33	Parry & Co.	"	186	W. Harrison & Co.	Holland,	2	Phillips & Graves
"	24	R. Bew	"	54	Croysdale & Co.	"	15 tubs	L. & I. D. Jt. Co.	"	5 cs.	Haefner, Hilpert & Co.
"	2	64 brls. Lyon & Co.	"	46	L. & I. D. Jt. Co.	Holland,	5	6 cs. Phillips & Graves	Belgium,	11 pkgs.	W. Harrison & Co.
"	70	D. C. Thomas & Sons	Myrabolams		J. P. Alpe & Co.	France,	25	J. L. Lyon & Co.	Varnish—		
"	60	O'Hara & Hoar	E. Indies,	2,330 pkgs.	W. Shelcott	"	15	T. & W. Farmiloe	Belgium,	2 pkgs.	Stobbs, Wilson & Co.
Holland,	22	Magee, Taylor & Co.	Naphthaline		Fleming's Oil Co.	Paraffin Wax—			U. States,	38	Magee, Taylor & Co.
"	46	J. Owen	Germany,	15 pkgs.		U. States,	2,444 pkgs	J. H. Usmar & Co.	White Lead—		
"	41		Oreohella			"	101 cs.	H. Hill & Sons	France,	20 cks.	J. Watt & Son
Caoutchouc—			Ceylon,	44 pkgs.	Prop. Sun Wf. Hoare, Wilson & Co.	Pitch—			Belgium,	8 brls.	Stobbs, Wilson & Co.
Mauritius,	121 c.	Hammond & Co.	Shumac			France,	25 brls.	Poth, Hille & Co.	Germany,	120 cks.	Elkan & Co.
E. Indies,	40	Wallace Bros.	Italy,	50 pkgs.	J. Knill & Co.	Sweden,	100 cks.	Watts & Co.	Holland,	13	Spies, Bros. & Co.
"	10	Prop. Bull Wf.	"	4,000	J. Kitchin, Ltd.	N. Russia,	70 brls.	J. Hunt & S. J. Gr	"	31	A. & M. Zimmermann
"	46	Henderson Bros.	"	150	S. Barrow & Bro., Ltd.	"	£116		Germany,	19	J. L. Lyon & Co.
France,	35	Prop. Bull Wf.	"	200	Sollas & Sons	Plumbago—			Germany,	40	W. Fenton
Zanzibar,	3	Hernu, Peron & Co.	"	694	C. S. Lovell	Ceylon,	187 brls.	Prop. Sun Wf.	"	9	Petri Bros.
Singapore,	57	L. & I. D. Jt. Co.	"	250	Beresford & Co.	"	89	N. S. S. Co.	"	9	P. Jantzen
E. Indies,	34	"	"	78	Hicks, Nash & Co.	"	94	Brookes & Green	"	25	Burrell & Co.
Natal,	37	N. S. S. Co., Ltd.	"	210	W. Shelcott	"	20	R. G. Hall & Co.	"	21	F. Broome
Germany,	80	B. & F. Wf. Co., Ltd.	"	200	F. Roberts	Germany,	160 cs.	Prop. Scott's Wf. Elkan & Co.	France,	47	W. Harrison & Co.
Madagascar,	45	Blythe, Green & Co.	"	100	Vokins & Co., Ltd.	"	3 cks.	B. Gallaway	Belgium,	9	J. L. Lyon & Co.
Carbonic Acid—			Tanner's Bark		Leach & Co.	Holland,	55	Prop. Hay's Wf. L. & I. D. Jt. Co.	Zinc Oxide—		
Holland,	15 pkgs.	Volcanic Aeration Co.	Melbourne,	49 t.	Leishman, Inglis & Co.	"	63		Germany,	5 cks	Beresford & Co.
Carbonic Acid Gas—			"	4		Ceylon,	12		Holland,	50	Prprs. Dowgate Dk.
Holland,	23 pkgs.	T. Palmer	Canada,	200 cks.	A. J. Humphrey	Potash—			Germany,	75 brls	M. Ashby, Ltd.
Castor Oil—			Yalonia		Adam Bros	Canada,	169 c.	Charles & Fox	Germany,	30 cks	50 pkgs. J. Matton
Belgium,	57 brls.	Fuerst Bros.	A. Turkey,	51 t.		Potassium Carbonate—			"	50 brls.	M. Ashby, Ltd.
Italy,	30 cs.	B. & N. Whvs. Co., Ltd.	Farina—			France,	100 c.	Beresford & Co.	Zinc Sulphate—		
"	16	Stebbing & Co.	Holland,	50 pkgs.	J. Barber & Co.	Germany,	20	J. A. Reid	Holland,	5 pkgs.	J. Barber & Co.
Chemicals (otherwise undescribed)			Germany,	15	T. H. Lee	Germany,	£100	Beresford & Co.	Zinc White—		
Holland,	£10	A. & M. Zimmermann	Holland,	100	G. Hornzee	Potassium Oxymuriate—			Belgium,	10 cks.	J. L. Lyon & Co.
Germany,	270	30 pkgs. T. H. Lee	French Chalk—			U. States,	100 pkgs.	G. Boor & Co.	Germany,	25	J. Matton
"	270	7 pkgs. A. & M. Zimmermann	France,	£50	Stobbs, Wilson & Co.	Potassium Permanganate—			LIVERPOOL.		
"	12	J. Barber & Co.	Gamboge—			Germany,	20 pkgs.	H. Lorenz	<i>Week ending October 5th.</i>		
"	26	Domeier & Co.	Singapore,	39 cs	L. & I. D. Jt. Co.	Potassium Sulphate—			Acetic Acid—		
France,	12	Phillips & Graves	Glucose—			Germany,	508 pkgs.	H. & E. Albert	Rotterdam,	18 bskts.	
Belgium,	28 pkgs.	T. Palmer	U. States,	1,525 pkgs.	1620 c. Fellows, Morton & Co.	Belgium,	58	T. Palmer	Acids—		
Chloride of Lime—			"	250	250	Pumice Stone—			B. Ayres,	6 cs.	W. J. Bush & Co.
France,	£66	Mead, Son & Co.	"	100	440	Italy,	24 t.	F. V. Smythe & Co.	Albumen—		
Cream of Tartar—			"	650	650	Holland,	5	O'Hara & Hoar	Marseilles,	20 cs.	
France,	20 pkgs.	B. & F. Wf. Co., Ltd.	"	99	600	Pyrites—			Alumina Sulphate—		
"	1	Windschuegl & Co.	"	500	500	Spain,	567 t.	Anderson, Anderson & Co.	Rotterdam,	16 cks.	
Holland,	15	Middleton & Co.	"	50	280	Portugal,	980	Mason & Barry	Aluminium—		
Italy,	9	Fellows, Morton & Co.	"	50	305	U. States,	500 brls.	F. & S. Chiesman & Co.	New York,	13 cs.	T. Sample
Spain,	8	McDougall & Bonthron	"	50	275	"	1,215	H. Hill & Sons	Ammonia (Liquid)—		
Holland,	9	C. Webster	"	100	535	Saltpetre—			Antwerp,	6 brls	J. T. Fletcher & Co.
"	40	Matheson & Co.	"	1,000	1,000	E. Indies,	115 bgs.	C. Wimble & Co.	Aniline Oil—		
Dextrine—			"	104	608	"	350	Ralli Bros.	Rotterdam,	2 cks.	
Germany,	100 pkgs.	Hernu, Peron & Co.	"	3423	5,728	"	1,346	Lucas & Spencer's Wf.	Antimony—		
"	250	W. Balchin	"	250	250	Soda—			Antofagasta,	766 bgs.	Hainsworth, Watson & Co.
"	100	J. Barber & Co.	"	150	843	France,	60 c.	Chiswick Soap Co.	Mollendo,	152 sks.	Braillard, Fils & Co.
"	20 bgs.	M. D. Co.	"	500	500	Holland,	115 pkgs.	F. Boehm	Antofagasta,	127	A. Gibbs & Sons
"	42	10 cks. Davis & Co.	"	1,000	1,000	Starch—			"	175	Vivian, Younger & Co.
Dyestuffs—			"	250	250	Holland,	560	C. J. Capes & Co.	Asbestos—		
Aniline		Phillips & Graves	"	300	300	Germany,	471	A. Starck	Boston,	6 brls.	W. Wingate & Johnston
Germany,	1 pkge		"	1,100	1,000	"	3,221	Seaward Bros.	Barium Carbonate—		
Annatto		Hoare, Wilson & Co.	"	500	500	Belgium,	650	Prop. Scott's Wf. T. H. Lee	Rotterdam,	130 bgs.	
Ceylon,	20 pkgs.		"	695	900	"	80	Leach & Co.	Barytes—		
Argols		Thames S. T. & L. Co., Ltd.	"	2,010	2,053	"	23	Barrett Tagant & Co.	Antwerp,	599 bgs.	
Italy,	569 pkgs.		France,	200	200	Holland,	170	Ghent Terneuzen Rly. Co.	Boracic Acid—		
Cutch		R. G. Hall & Co.	Magnesium—			"	26	Hernu, Peron & Co.	Leghorn,	34 cks.	
E. Indies,	361 pkgs.		Germany,	2 cs.	D. W. Greenbough & Son	Manganese—			Boracite—		
U. States,	490	Ralli Bros.	Holland,	36 c.	G. Rahn & Co.	"	7 bgs	Robinson, Roberts & Co.	Constantinople,	250 t.	
E. Indies,	25	Wrightson & Co.	Methyl Alcohol—			Belgium,	63 cks.	H. Hill & Sons	Borate of Lime—		
Extracts			Germany,	10 dms.	Stein Bros. J. Kertel	"	50 t.	Soundy & Son J. Kitchin, Ltd.	Valparaiso,	1,827 sks.	Cockburn, Allardice & Co.
France,	130 pkgs.	B. & F. Wf. Co., Ltd.	U. States,	150 brls.		"	20	G. Boor & Co.	Antofagasta,	1,500	
"	100	Williams, Torrey & Field	Mica—			"	21	R. Morrison & Co.	"	1,125 bgs.	
"	95	Prop. Chmbln.'s Wf.	Ceylon,	£59	W. M. Smith & Sons	"	12	M. D. Co.	Caoutchouc—		
"	5	C. Faust & Co.	Singapore,	29	"	"	10	F. C. Devon & Co.	Lisbon,	6 brls.	J. Latham & Son
"	310	L. J. Levinstein & Sons	E. Indies,	228	"	"	4	H. W. Ison			
"	27	Beresford & Co.	"	10	F. Claydon & Co.	"	5	F. Smith			
Germany,	10	T. H. Lee									
Austria,	300	A. J. Humphrey									
Singapore,	14	R. G. Hall & Co.									
Gambier											
E. Indies,	2,309 pkgs.	E. Boustead & Co.									
Singapore,	752	Beresford & Co.									
"	252	L. & I. D. Jt. Co.									
"	450	Brinkmann & Co.									

Castor Oil—
Marseilles, 6 cks. J. J. Mack & Son
" 2 Evans & Roberts
" 87 323 brls.

Caustic Potash—
Dunkirk, 35 dms.

Caustic Soda—
Catania, 20 dms.

Chemicals (*otherwise undescribed*)
Boston, 100 kgs.
Hamburg, 58 cks.

Chloride of Lime—
Philadelphia, 210 brls. 155 cs.

Colours—
Rotterdam, 3 cs. 1 ck.
Bremen, 48 pkgs.
Ghent, 4 brls. J. T. Fletcher & Co.

Cottonseed Oil—
New York, 579 brls.

Cream of Tartar—
Barcelona, 2 pps.
Marseilles, 20 kgs. 5 hds.

Dyestuffs—
Algarroballa
Coquimbo, 17 sks. Schintz & Co.
Cocaine
Gr. Canary, 20 sks. Widow Duranty & Son

Cutch
Rangoon, 1,770 bxs.
Divi Divi
Hamburg, 92 bgs.
Extracts
Bordeaux, 130 cks.
Baltimore, 30 5 brls.
Gambier
Singapore, 437 bls. R. & J. Henderson

Logwood
Belize, 8,506 52 t. E. Chaloner & Co.

Orchella
San Francisco, 721 bls.
Saffron
Valencia, 3 cs.
Sumac
Barcelona, 90 bgs.
Palermo, 70 J. Kitchnill
" 1,725 450 bls.

Dyestuffs (*otherwise undescribed*)
New York, 10 brls. W. Bingham

Farina—
New York, 715 sks

Glucose—
New York, 776 brls.
Boston, 2
Rouen, 10 cks. Co-op W'sale Society, Ltd.
Dunkirk, 100 bgs.

Iodine—
Valparaiso, 9 brls. A. Gibbs & Sons
" 31

Lead Acetate—
Hamburg, 16 cks.

Manganese—
Constantinople, 550 t.
Coquimbo, 1,000

Mica—
New York, 1 cs.

Nitrate—
Rotterdam, 8 cks.

Ochre—
Marseilles, 10 cks. B'ham Colour Co.
Rouen, 19 R. J. Francis & Co.
Marseilles, 90 brls. Allan Bros. & Co.
Alicante, 25 77 cks. Roberts & Evans

Paint—
Manila, 1 brl. W. R. Taylor & Co.
Boston, 20 cs. M. Nicols & Co.
Montreal, 3 W. Memery
" 34 brls.

Paraffin Scale—
Philadelphia, 340 brls.
Rangoon, 330 bxs.

Phosphate—
Brussels, 130 t.
Dunkirk, 440
Montreal, 236 Phosphate of Lime Co., Ltd.
Antwerp, 500 bgs.

Pitch—
Amsterdam, 55 cks.
Dunkirk, 62

Potash—
Montreal, 5 brls. C. H. Cunningham
Rouen, 53 cks. Co-op W'sale Society, Ltd.
Dunkirk, 21 dms.
Rotterdam, 38 cks.

Potash Salts—
Hamburg, 3,293 bgs.

Rosin—
New York, 200 brls.
Baltimore, 113

Saltpetre—
Hamburg, 25 brls. 1 ck.

Soap—
Marseilles, 220 cs. Allan Bros. & Co.
" 21 Bostock & Co.
" 1 Thompson, & Co.
New York, 5 Tedcastle & Co.
Leghorn, 285 bxs. Weaver & Sterry

Starch—
Baltimore, 800 bgs.
Hamburg, 27 cks.
Antwerp, 70 cs. J. T. Fletcher & Co.

" Rotterdam, 270
" 24
" 40 J. T. Fletcher & Co.

Stearine—
Antwerp, 63 bgs.
Rotterdam, 163 bls.

Sulphur—
Marseilles, 10 brls. 15 bls. Allan Bros. & Co.
Catania, 13 50 bgs. 67 cks.

Tallow—
Boston, 319 tcs. 32 hds. 100 brls.
Philadelphia, 35 cks. 20 60
Baltimore, 175 tcs.
M. Video, 76 pps. Haycroft & Pethick

Tar—
Archangel, 1,435 brls.

Tartar—
Bordeaux, 113 cks.
Naples, 3

Tartaric Acid—
Rotterdam, 3 cks. Sachse & Klemm
" 15

Ultramarine—
Rotterdam, 10 cs. 15 cks.
Hamburg, 1 4 cts.

Verdigris—
Bordeaux, 3 cks.
Marseilles, 2 brls. Thompson, & Co.
" Tedcastle & Co.

Waste Salt—
Hamburg, 122 t.

White Lead—
Rotterdam, 47 cks.

Zinc Oxide—
Antwerp, 90 brls. J. T. Fletcher & Co.
" 25 cks.
Rotterdam, 46

HULL.

Week ending October 7th.

Acetic Acid—
Antwerp, 2 brls. Langley & Co.
" 10 pks. G. Myers
Rotterdam, 20 bts. Hutchinson & Son

" 28 blns. W. & C. L. Ringrose

Acids—
Leghorn, 10 cks. Wilson, Sons & Co., Ltd.

Ammonium Chloride—
Antwerp, 10 dms. Wilson, Sons & Co., Ltd.

Barytes—
Antwerp, 21 cks.
" 40

Bremen, 11 96
" H. F. Pudsey
" Spence & Co.

Carbolic Acid—
Bremen, 12 pks. Veltmann & Co.

Cellulose—
Hamburg, 52 bls. Wilson, Sons & Co., Ltd.

Chemicals (*otherwise undescribed*)
Copenhagen, 62 cks. Wilson, Sons & Co., Ltd.
Bremen, 7 Veltmann & Co.
Hamburg, 2 Wilson, Sons & Co., Ltd.

Antwerp, 75 pks. 3 brls.
" 1 pkge. " "
Dunkirk, 63 33 cks. Wilson, Sons & Co., Ltd.

Colours—
Danzig, 18 cks.
Rotterdam, 5 cs. 34 pkgs. W. & C. L. Ringrose

" 2 pks. 1 ck. G. Lawson & Sons

" 69 pkgs. J. Good & Sons
Amsterdam, 7 W. & C. L. Ringrose

Flushing, 92 pks. G. Lawson & Sons

" 4 Brach & Rothenstein
Bremen, 9 cs. 14 cks. Veltmann & Co.

" 4 Todd & Son
Amsterdam, 2 W. & C. L. Ringrose

Rotterdam, 1 cs. 26 24 brls. Hutchinson & Son
Flushing, 18 34 Hutchinson & Son

Antwerp, 24 pks.

Dextrine—
Stettin, 200 bgs. Wilson, Sons & Co., Ltd.

Dyestuffs—
Alizarine
Rotterdam, 40 cks. 45 pks. W. & C. L. Ringrose

" 19 pkgs. J. Good & Sons

Flushing, 40 pks. G. Lawson & Sons

Rotterdam, 1 brl. Hutchinson & Son

Flushing, 2 cs. 16 cks. " "

Fustic
Hamburg, 825 pcs. Wilson, Sons & Co., Ltd.

Farina—
Stettin, 90 bgs. Wilson, Sons & Co., Ltd.

Ghent, 80 cs. " "
Harlingen, 30 Wilson, Sons & Co., Ltd.
Hamburg, 90

Glucose—
Stettin, 103 cks. Wilson, Sons & Co., Ltd.

" New York, 500 bgs.
" 250 brls.

Kaolin—
Rotterdam, 256 bgs. 30 cks. Reckitt & Sons

Nitrate—
Rotterdam, 4 cks. W. & C. L. Ringrose

Ochre—
Marseilles, 56 cks. Wilson, Sons & Co., Ltd.
" 113

Potash—
Antwerp, 5 dms. 10 cks. Wilson, Sons & Co., Ltd.
Hamburg, 24
Rotterdam, 4 G. Holmes & Co.

Pumice Stone—
Leghorn, 25 cks. 105 bgs. Wilson, Sons & Co., Ltd.
" 22 cs. 40 bgs.

Soap—
Marseilles, 1 cs.
Flushing, 1 Brach & Rothenstein

Soda—
Antwerp, 9 cks.
Sodium Nitrate—
Hamburg, 75 bgs. Wilson, Sons & Co., Ltd.

Starch—
Bremen, 1,344 cs. Veltmann & Co.

Talc—
Leghorn, 600 bgs. Wilson, Sons & Co., Ltd.

Tallow—
Genoa, 150 bgs. " "

Antwerp, 68 bgs. Wilson, Sons & Co., Ltd.

New York, 40 pks. 310 tcs. 71 brls. Wilson, Sons & Co., Ltd.

Tar—
Hango, 1 brl. J. Good & Sons

Tartaric Acid—
Rotterdam, 2 cks. G. Lawson & Sons

" 3 Hutchinson & Son

Turpentine—
Hango, 1 bbl. J. Good & Sons

Ultramarine—
Rotterdam, 4 cks.

Varnish—
Rotterdam, 3 cks. J. Good & Sons
Antwerp, 7 brls.

White Lead—
Rotterdam, 27 cks. Tudor & Sons

" 20 Sissons Bros. & Co.
" 7 Gibson Bros.

" 12 Storry, Withy, & Co.
" 14 A. Sanderson & Co.
Antwerp, 91 Bailey & Leatham

GLASGOW.

Week ending October 12th.

Acetic Acid—
Rotterdam, 4 cks. J. Rankine & Son

Albumen—
Antwerp, 40 cs.

Alum—
Hamburg, 117 cks.

Alumina Sulphate—
Hamburg, 3 cks.

Arachide Oil—
Rotterdam, 2 cks. J. Rankine & Son

Barium Sulphate—
Antwerp, 50 bgs. 46 cks.

Barytes—
Rotterdam, 50 cks. J. Rankine & Son

Castor Oil—
Marseilles, 82 pkgs.
Antwerp, 112 cks.

Chemicals (*otherwise undescribed*)
Rotterdam, 15 cks. J. Rankine & Son

Colours—
Rotterdam, 11 cks. 7 cs. J. Rankine & Son

" Hamburg, 2
" 9

Cream of Tartar—
Marseilles, 3 cks.

Dyestuffs—
Alizarine
Rotterdam, 33 brls. J. Rankine & Son

" 114 cks.

Extracts
Antwerp, 2 cks.

Dyestuffs (*otherwise undescribed*)
New York, 85 bxs.

Manganese Chlorate—
Rotterdam, 4 cks. J. Rankine & Son

Ochre—
Marseilles, 209 pkgs.

Paint—
Antwerp, 7 dms.

Painters' Colours—
Antwerp, 14 cs. 1 ck.

Pyrites—
Huelva, 1,758 t. Charsis Co.

Rosin—
New York, 501 brls.

Soap—
Marseilles, 80 cs.

Starch—
Rotterdam, 20 cs. J. Rankine & Son

Tallow—
Boston, 15 hds. 27 tcs.
New York, 20

Ultramarine—
Rotterdam, 5 cs.

Waste Salt—	
Hamburg,	50 cks.
Zinc Ashes—	
Antwerp,	16 cks.
Zinc Oxide—	
Rotterdam,	25 cks. J. Rankine & Son

TYNE.

Week ending October 7th.

Alum Earth—	
Hamburg,	17 cks. Tyne S. S. Co
Barium Carbonate—	
Rotterdam,	270 bgs. Tyne S. S. Co.
Barytes—	
Rotterdam,	35 cks. Tyne S. S. Co.
Antwerp,	44 "
Carbolic Acid—	
Copenhagen,	quantity.
Glucose—	
New York,	300 brls.

Salt—	
Hamburg,	2 bgs. Tyne S. S. Co.
Starch—	
Rotterdam,	218 cs. Tyne S. S. Co.
Antwerp,	80 "
Sulphur Ore—	
Pomaron,	885. Mason & Barry
Tallow—	
New York,	57 pkgs.
Tartaric Acid—	
Rotterdam,	5 cks. Tyne S. S. Co.
White Lead—	
Ghent,	11 brls. Tyne S. S. Co.
Zinc Oxide—	
Antwerp,	40 brls. Tyne S. S. Co.

GRIMSBY.

Week ending October 7th.

Albumen—	
Dieppe,	31 pkgs.

Chemicals (otherwise undescribed)	
Antwerp,	14 cks.
Hamburg,	48 pkgs.
Dyestuffs (otherwise undescribed)	
Dieppe,	35 cks.
Farin—	
Hamburg,	20 bgs.
Zinc Ashes—	
Antwerp,	9 cks.

GOOLE.

Week ending October 4th.

Anthracene—	
Boulogne,	32 cks.
Caoutchouc—	
Boulogne,	8 cks. 1 cs.
Dyestuffs—	
Alizarine	
Rotterdam,	19 brls.

Logwood	
Belize,	777 t.
Campeche,	450
Dyestuffs (otherwise undescribed)	
Boulogne,	30 cks. 2 cs.
Farina—	
Delfsryhl,	1,800 bgs.
Hamburg,	100
Pitch—	
Hamburg,	29 brls.
Potash—	
Rotterdam,	72 cks.
Calais,	115 dms.
Potassium Carbonate—	
Dunkirk,	50 pkgs.
Salammoniac—	
Rotterdam,	16 cs.
Saltpetre—	
Rotterdam,	100 bgs.
Waste Salt—	
Hamburg,	508 bgs.

EXPORTS OF CHEMICAL PRODUCTS

OF

THE PRINCIPAL PORTS OF THE UNITED KINGDOM.**LONDON.**

Week ending October 11th

Acids—	
Cape Town,	38 c.
Algoa Bay,	20 drs. 6 cs.
Alkali—	
Natal,	5 c.
E. London,	10
Alum—	
Mauritius,	20 kgs.
E. London,	50
Alum Cake—	
Melbourne,	5 t.
Ammonia (Liquid)—	
Cape Town,	2 c.
Hong Kong,	10 cs.
Ammonium Carbonate—	
Bordeaux,	10 cks.
B. Ayres,	1 t.
Amsterdam,	3 c.
Montreal,	6
Ammonium Sulphate—	
Demerara,	52 t. 13 c.
Hamburg,	100 17
Arsenic—	
Singapore,	10 c.
Napier,	1 t. 10
Timaru,	14
Stanley, F.I.,	4 cks.
Sydney,	11
Borax—	
Cologne,	2 t. 18 c.
M. Video,	10
Sydney,	11
Carbolic Acid—	
Rotterdam,	5 t.
Melbourne,	1 t. 1 c.
Algoa Bay,	18
B. Ayres,	1 cs.
Stanley, F.I.,	17 cks.
Hamburg,	80
Wellington,	11
Carbon Bisulphide—	
M. Video,	10 cs.
B. Ayres,	200 drs.
Caustic Potash—	
Lyttelton,	3 t. 5 c.
Caustic Soda—	
Pt Elizabeth,	1 t. 6 c.
Algoa Bay,	1 5
E. London,	1 13
Auckland,	4 17
Sydney,	20
Chemicals (otherwise undescribed),	
Melbourne,	3 cs.
Yokohama,	3 t.
Cape Town,	6
Wellington,	3
Citric Acid—	
Cape Town,	1 c.
Genoa,	7
Brussels,	5
Jamaica,	1

Coal Products—	
Aniline	
Melbourne,	2 cs.
Aniline Oil	
Genoa,	8 runs.
Naphtha	
Treport,	50 brls.
Pitch	
Antwerp,	275 t.
Algoa Bay,	12 cks.
Calcutta,	30
Sydney,	5 brls.
Tar	
Algoa Bay,	10 tks.
Copper Sulphate—	
Amsterdam,	1 t. 2 c.
Algoa Bay,	2 5
Cream of Tartar—	
Wellington,	2 c.
Auckland,	10
Sydney,	1 t.
Lyttelton,	1
Dunedin,	5
Disinfectants—	
Hamburg,	45 cks.
Brussels,	10
Sydney,	7
Algoa Bay,	6
Mauritius,	3 pkgs.
Mogador,	22
Bombay,	160 drs.
Hong Kong,	130 20
Penang,	100
Foochow,	2 cks.
New York,	1 t. 4 c.
Flowers of Sulphur—	
Strs. Magellan,	20 t.
Sydney,	1
Hydrofluoric Acid—	
E. London,	10 c.
Lead Acetate—	
Mauritius,	4 kgs.
B. Ayres,	3 c
Manure—	
Demerara,	25 t.
Montreal,	5 2 c.
Natal,	5 5
Genoa,	60
Nitric Acid—	
Algoa Bay,	13 cs.
Oxalic Acid—	
Brussels,	1 t.
Phosphorus—	
E. London,	5 c.
Potassium Chlorate—	
B. Ayres,	5 c.
Shanghai,	5 c.
Potassium Iodide—	
Shanghai,	1 c.
Salicylic Acid—	
Hobart,	1
Salt Cake—	
Antwerp,	140 t.

Saltpetre—	
B. Ayres,	2 t. 10 c.
Brisbane,	1
Algoa Bay,	1 4
M. Video,	2 15
Auckland,	10 11
Sydney,	1 16
Natal,	10 11
Wellington,	10 11
Sheep Dip—	
Magellan Strs.,	50 cs.
Algoa Bay,	7 t. 14 c 600 drs
Falklands,	68 cks. 99
Stanley, F.I.,	21 40 pkgs. 35
Wellington,	103
Wanganui,	182
Soda—	
Stanley, F.I.,	1 t.
Soda Crystals—	
Algoa Bay,	1 t
E. London,	18 c.
Stanley, F.I.,	1
Newcastle,	18
Sodium Bicarbonate—	
S. J. de Guatemala,	1 t.
Timaru,	1
Auckland,	2
Trinidad,	4 5 c.
Sodium Salicylate—	
Algoa Bay,	2 cs.
Sodium Tartrate—	
Melbourne,	5 c
Sulphur—	
Magellan Strs.,	15 t.
M. Video,	25 cs.
Sulphuric Acid—	
Penang,	1 t. 5 c.
Algoa Bay,	4 50 cs.
Cape Town,	2 8
Santos,	20 20
E. London,	30 24
Aden,	10 10
Tartaric Acid—	
Melbourne,	1 t.
Launceston,	3 c.
Dunedin,	3 16

LIVERPOOL.

Week ending October 11th.

Alum—	
Malaga,	1 t. 11 c. 1 q.
Malta,	1
Mannos,	2
Calcutta,	34 11
Penang,	1 5
Halifax,	3 9 2
Aluminous Cake—	
Calcutta,	18 t. 3 c. 3 q.
Ammonium Carbonate—	
Copenhagen,	7 c. 2 q.
Marseilles,	8 3
Genoa,	10 1
Barcelona,	14 2
Passages,	18 2

Ammonium Chloride—	
Genoa,	13 c.
Sydney,	3 3 q.
Trieste,	2 t.
Constantinople,	10 3
Ibrail,	1 1
St. Petersburg,	11 5
Ammonium Sulphate—	
Barcelona,	96 t. 6 c.
Rotterdam,	50 3
Nantes,	7 4
St. Petersburg,	40 16
Bordeaux,	22 2
Valencia,	51 13
Arsenic Acid—	
New York,	20 t.
Asbestos—	
Iquique,	2 bxs.
Bisulphite of Lime—	
Sydney,	1 t. 11 c.
Bleaching Powder—	
Baltimore,	37 cks.
Calcutta,	35
Genoa,	30
Montreal,	33
Nantes,	14
New York,	320
Rouen,	44
San Sebastian,	34
Easton,	134
Lisbon,	5
Passages,	75
Piraeus,	7
Riga,	20
Rio de Janeiro,	80 brls.
Vera Cruz,	14 17 cs.
Boracic Acid—	
Odessa,	12 c.
Marseilles,	1 t. 1
Borax—	
Cadiz,	11 c.
Hamburg,	2 t. 2
Algoa Bay,	1
Vera Cruz,	5 c. 1 q.
Alexandria,	18
E. London,	1
Gefse,	1 2 1
Amsterdam,	3 3
Rotterdam,	15 8 2
Montreal,	1 6
Calcium Chloride—	
New York,	10 t.
Carbolic Acid—	
Hamburg,	4 c.
Singapore,	4 3 c.
Rotterdam,	15 3
Rouen,	4
Carbonic Acid—	
Bombay,	1 cs.
Castor Oil—	
Belize,	1 ck.
Oporto,	3
Caustic Soda—	
Bahia,	10 dms.
Baltimore,	135 brls.
Boston,	50 bxs.

[illegible]

Sulphur—				
Calcutta,	20 t.	2 c.		£78
Boston,	200	8		772
Chatham, N B,	500	5		1,930
Antwerp,	10	1		42
Vera Cruz,		18		8
Para,		10		4
Rouen,	30	4		145
Superphosphate—				
Rocheport,	90 t.	3 c.		£178
Tartaric Acid—				
Vigo,	4 c.	3		£25
Havana,	1			6
Tin Crystals—				
Trinidad,	4 t.		1 q.	£272
Surpentine—				
Accra,	12 dms.			
Conakry,	15			
Varnish—				
Madras,	5 cs.			
Portland, O.,	5			
Vermilion—				
Calcutta,	4 cks.			
Zinc Chloride—				
Bombay,	3 t.	6 c	3 q.	£48

HULL.

Week ending October 7th.

Alkali—				
Stettin,	10 cks.			
Ammonium Sulphate—				
Hamburg,	743 bgs.			
Rotterdam,	360			
Basic Slag—				
Stettin,	577 t.			
Bleaching Powder—				
Helsingfors,	22 cks.			
St. Petersburg,	48			
Borax—				
Antwerp,	10 cks.			
Stettin,	1			
Caustic Soda—				
Helsingfors,	9 cks.			
St. Petersburg,	60			
Wyburg,	14			
Chemicals (otherwise undescribed)				
Antwerp,	2 cs.	1 ck.		
Constantinople,	50			
Christiania,	6			
Copenhagen,	12			
Gothenburg,	18	50 pkgs.		
Hamburg,	47	4		
Harlingen,	20			
Helsingfors,	2			
Konigsberg,		1 pkge.		
Riga,	68	50		
Rotterdam,	31	96	15	
St. Petersburg,	20			60 pks.
Stockholm,	1			
Stettin,	2			
Wyburg,		70		
Cottonseed Oil—				
Antwerp,	251 cwt.			
Copenhagen,	100			
Flushing,	202			
Hamburg,	600			
Konigsberg,	100			
Rotterdam,	301			
Stockholm,	320			
Stettin,	98			
Cresole—				
Antwerp,	5 cks.			
Christiania,	1			
Gothenburg,	150			
Dyestuffs (otherwise undescribed)				
Amsterdam,		2 cs.		
Christiania,	25 bls.			
Flushing,	2			
Hamburg,	2 cks.			
Harlingen,	20			
Rotterdam,	5	1		
St. Petersburg,	33	205	8	
Stettin,	67			
Guano—				
Dunkirk,	50 t.			
Linseed Oil—				
Christiania,	466 cwt.			
Christiansand,	37			
Copenhagen,	20			
Drontheim,	17			
Hamburg,	58			
Hango,	104			
Helsingfors,	170			
Rotterdam,	203			
Naphtha—				
Hamburg,	25 cks.			
Ochre—				
Hamburg,	5 cks.			

Painters' Colours—				
Antwerp,	62 cks.	1 dm	5 cs.	
Amsterdam,	15			6
Bremen,				
Christiania,	5			
Copenhagen,	9			
Dunkirk,	1		2	
Gothenburg,			4	
Hamburg,	55	32		
Helsingfors,	11		2	
Konigsberg,	36			
New York,	1			
Odessa,	273			
Rouen,	2			
Rotterdam,	7		1	
St. Petersburg,	10			
Stockholm,			1	
Stettin,	2			
Pitch—				
Antwerp,	776 t.			
Christiania,		13 bls.		
Copenhagen,	25			
Helsingfors,	5 cs.			
Plumbago—				
Rotterdam,	6 cks.			
Salt—				
Christiania,	70 bls.			
Copenhagen,	5 t.			
Soap—				
Hamburg,	2 cs.			
Tallow—				
Bremen,	100 kgs.			
Rotterdam,	19 cks.			
Tar—				
Antwerp,	2 cks.			
Hamburg,	13			
Helsingfors,	105			
Stettin,	5			
Wyburg,	2			
Varnish—				
Antwerp,	1 ck.	3 bls.		
Copenhagen,		2 cs.		
Reval,	1			
Riga,	6			
Rotterdam,	7			

GLASGOW.

Week ending October 12th.

Acetate of Lime—				
Antwerp,	20 t.			£300
Acids—				
Rangoon,				£27
Alkali—				
Rangoon,	3 t.			£28
Ammonia (Liquid)—				
Philippines,	300 lbs.			£34
Ammonium Carbonate—				
Quebec,	3 t.	6¼ c.		£97
Ammonium Sulphate—				
Nantes,	150 t.	½ c.		£2,082
Bordeaux,	18	9¼		230
Hamburg,	58			824
Bleaching Powder—				
Bombay,	4 t.	3 c.		£46
Boracic Acid—				
Rouen,	19¼ c.			£38
Borax—				
Rouen,	4 t.	18¼ c.		£154
Hamburg,	10 cks.			135
Caustic Soda—				
Montreal,	11 t.	16¼ c.		£108
Philippines,	14	9		136
Chloroform—				
Brisbane,		2¼ c.		£23
Coal Products—				
Naphtha				
Rouen,	11 t.	17¼ c.		£263
Pitch				
Bombay,	15 t.	16 c.		£36
Montreal,	30	9		45
New York,	154	5		277
Genoa,	2,085	5		1,563
Oporto,	101	7½		130
Rotterdam,	454			505
Hamburg,	54	290 brls.		266
Tar				
Straits,	68 t.	1 c.		£103
Saigon,				£52. 10s.
Hamburg,	343 brls.			144
Tar Oil				
Hamburg,	1 brl.			11s.
Coal Tar Products (otherwise undescribed)—				
Rotterdam,	8 dms.			£75
Cottonseed Oil—				
Rotterdam,	9 t.			£221

Dried Blood—				
Rouen,	7 t.	8½ c.		£56
Dyestuffs—				
Fustic Extract				
Montreal,		17¼ c.		£31
Dyestuffs (otherwise undescribed)				
Oporto,	9 t.	11¼ c.		£151
Glucose—				
Cape Colony,				£21
Lead Acetate—				
Bombay,	3 t.	19¼ c.		£61
Linseed Oil—				
Bombay,	5 t.	3½ c.		£80
Quebec,	4	7½		102
Alexandria,	6	12¼		144
Montreal,	8	11¼		190
Rangoon,	5	1		13
Philippines,	15	9¼		408
Cape Colony,	2	1¼		58
Litharge—				
Bombay,	1 t.	19 c.		£26
Magnesium Sulphate—				
Mauritius,				£20
Manganese—				
Hamburg,	10 t.			£75
Ochre—				
New York,	2 t.	15 c.		£45
Hamburg,	19 cks.			59
Paint—				
Pt. Said,				£44
Bombay,				46
Alexandria,	2 t.	12¼ c.		49
New York,	2	6¼		277
Brisbane,	4			55
Philippines,				92
Cape Colony,	5	6¼		147
Painters' Colours—				
Rangoon,				£506
Philippines,				79
Mauritius,	6 t.	4½ c.		65
Paraffin Wax—				
Gijon,	1 t.	10 c.		£35
Nantes,	7	13¼		195
Rotterdam,	10			12
Cape Colony,	5	10¼		173
Hamburg,	260 bgs.			557
Potash Salts—				
New York,	1 t.	7½ c.		£133
Quebec,		11¼		65
Potassium Bichromate—				
Bombay,	3 t.	18¼ c.		£148
Montreal,	7	2¼		282
Oporto,	5	2¼		210
Amsterdam,			17 cks.	230
Rotterdam,			14	234
Rouen,	16	2¼		535
Antwerp,	6	4		240
Hamburg,		3		60
Rosin Oil—				
Stockholm,	90 brls.			£159
Rotterdam,	10			20
Salt—				
Brisbane,	60 t.			£57
Soap—				
Bombay,	1 t.	13 c.		£36
Hamburg,		3½		5
Soda Ash—				
Philadelphia,	24 t.	19 c.		£119
Sodium Bicarbonate—				
Montreal,	5 t.	6¼ c.		£31
Sodium Bichromate—				
Bombay,	1 t.	7¼ c.		£42
Montreal,	8	8¼		276
Antwerp,	9	4¼		296
Sulphuric Acid—				
Rangoon,				£357
Tallow—				
Amsterdam,	1 t.	2 c.		£25
Rangoon,	1	10¼		42
Cape Colony,	1			31
Christiania,		14		18
White Lead—				
Brisbane,	5 t.			£117
Cape Colony,	5	2 c.		103
Mauritius,				60
White Lead and Paint—				
Philippines,				£360

TYNE.

Week ending October 7th.

Alkali—				
Riga,	18 t.	1 c.		
Bergen,	3	1		
Antimony—				
Rotterdam,	10 t.			
Arsenic—				
Rio de Janeiro,	18 c.			

Asbestos—	
Rotterdam,	1 c.
Barium Carbonate—	
St. Petersburg,	46 t.
Odessa,	2 10 c.
Bleaching Powder—	
Bruke,	3 t. 7 c.
Amsterdam,	44
Gothenburg,	14 19
Konigsberg,	6 5
Rotterdam,	9 18
Drontheim,	10
Ancona,	7 8
Norrkoping,	1 9
Riga,	4 2
St. Petersburg,	426 1
Genoa,	10 2
Calced Magnesia—	
Leghorn,	400 lbs.
Caustic Soda—	
Amsterdam,	5 t. 8 c.
Genoa,	43 10
Gothenburg,	5 2
Rotterdam,	2 17
Ancona,	33 7
Norrkoping,	5 2
St. Petersburg,	116 4
Odessa,	49
Colours—	
St. Petersburg,	11
Litharge—	
Amsterdam,	1 t. 19 c.
Gothenburg,	10 10
St. Petersburg,	2 11
Copenhagen,	18
Magnesia—	
Odessa,	1 t. 5 c.
Paint—	
Arendal,	2 c.
Painters' Colours—	
Naples,	4 t. 5 c.
Soda—	
Christiania,	15 t. 3 c.
Aalborg,	5
Amsterdam,	136 11
Gothenburg,	13 8
Rotterdam,	30 3
Bergen,	4 15
Drontheim,	5 4
Ancona,	7 7
Norrkoping,	67 11
Soda Ash—	
Christiania,	6 t. 14 c.
Aalborg,	25 7
Konigsberg,	167 2
Sodium Hyposulphite—	
Christiania,	10 c.
Copenhagen,	1 t.
Sodium Silicate—	
Odessa,	34 t. 2 c.
Sulphur—	
Christiania,	50 t.
Gothenburg,	60
Rotterdam,	200
Drontheim,	50
Yarnish—	
Constantinople,	¾ c.
Odessa,	¾
White Lead—	
Copenhagen,	2 t. 12

PRICES CURRENT.

WEDNESDAY, OCTOBER 18th

PREPARED BY MESSRS. HIGGINBOTTOM AND CO., 116, PORTLAND STREET, MANCHESTER.

The values stated are F.O.R. at maker's works, or at usual ports of shipment in U.K. The price in different localities may vary.

Acids:—

Acetic, 25 % and 40 %	per cwt.	7/6 & 11/3
" Glacial	"	50/-
Arsenic S.G., 2000°	"	0 14 6
Fluoric	per lb.	0 0 3½
Muriatic (Tower Salts), 30° Tw.	per bottle	0 0 10
" (Cylinder), 30° Tw.	"	0 3 0
Nitric 80° Tw.	per lb.	0 0 1½
Nitrous	"	0 0 1½
Oxalic	nett	0 0 3½
Phosphoric, 1750°	"	0 1 2½
Picric	"	0 1 0
Sulphuric (fuming 50 %)	per ton	15 10 0
" (monohydrate)	"	5 10 0
" (Pyrites, 168°)	"	3 0 0
" " 150°	"	1 5 0
" (free from arsenic, 145°)	"	1 6 0
Sulphurous (solution) S.G. 1025	"	3 0 0
Tannic (pure)	per lb.	0 1 2
Tartaric	"	0 0 11½
Arsenic, white powdered	nett per ton	13 10 0
Alum (loose lump)	"	5 2 6
Alumina Sulphate (pure)	"	5 0 0
Aluminoferrous	"	2 10 0
Aluminium	per lb.	0 3 0
Ammonia, Anhydrous	"	0 1 2
" "880=28°	per lb.	0 0 3
" " =24°	"	0 0 2½
" Carbonate	nett	0 0 3½
" Muriate	per ton	23 0 0
" " (sal-ammoniac) 1st & 2nd	per cwt.	37/- & 35/-
" Nitrate	per ton	42 0 0
" Phosphate	per lb.	0 0 10½
" Sulphate (grey) London	per ton	13 0 0
" " (grey) Hull	"	12 17 6
Aniline Oil (pure)	per lb.	0 0 6½
Aniline Salt	"	0 0 5½
Antimony	per ton	45 10 0
" (tartar emetic)	per lb.	0 1 0
" (golden sulphide)	"	0 0 10
Barium Chloride	per ton	7 10 0
" Carbonate (native)	"	3 10 0
" Sulphate (native levigated)	"	45/- to 75/-
Bleaching Powder, 35 %	nett	8 7 6
" Liquor, 7 %	"	3 10 0
Bisulphide of Carbon	"	11 15 0
Chromium Acetate (crystal)	per lb.	0 0 6
Calcium Chloride	per ton	2 5 0
China Clay (at Runcorn) in bulk	"	17/6 to 35/-

Coal Tar Products and Dyes:—

Alizarine (artificial) 20 %	net per lb.	0 0 8
Magenta	"	0 3 0
Anthracene, 30 % A, f.o.b. London	per unit per cwt.	0 1 2
Benzol, 90 % nominal	per gallon	0 1 6½
" 50/90	"	0 1 5
Carbolic Acid (crystallised 40°)	per lb.	0 0 5½
" (crude 60°)	per gallon	0 1 5
Creosote (ordinary)	"	0 0 2½
" (filtered for Lucigen light)	"	0 0 3½
Crude Naphtha 30 % @ 120° C.	"	0 0 8
Grease Oils, 22° Tw.	per ton	2 5 0
Pitch, f.o.b. Liverpool or Garston	"	1 6 0
Solvent Naphtha, 90 % at 160°	per gallon	0 1 2
" Lucigen" and "Wells" Oils	"	0 0 2½
Copper	per ton	41 17 6
" Sulphate	"	16 0 0
" Oxide (copper scales)	"	40 0 0
Glycerine (crude)	"	13 0 0
" (distilled S.G. 1250°)	"	43 0 0
Iodine	nett, per oz.	0 0 9
Iron Sulphate (copperas)	per ton	1 12 6
" Sulphide (antimony slag)	"	2 0 0
Lead (sheet) for cash	"	11 0 0
" Litharge Flake (ex ship)	"	13 0 0
" Acetate (white)	"	25 15 0
" " brown	"	17 10 0
" Carbonate (white lead) pure	"	20 0 0
" Nitrate	"	20 0 0

Lime, Acetate (brown)	per ton	2
" " (grey)	"	11
Magnesium (ribbon and wire)	per oz.	0
" Chloride (ex ship)	per ton	2
" Carbonate	per cwt.	1
" Hydrate	per ton	17
" Sulphate (Epsom Salts)	per ton	2
Manganese, Sulphate	"	17
" Borate	per cwt.	2
" Ore, 70 %	per ton	4
Methylated Spirit, 61° O.P.	per gallon	0
Naphtha (Wood), Solvent	"	0
" Miscible, 60° O.P.	"	0

Oils:—

Cotton-seed	per ton	23
Linseed	"	22
Petroleum, Russian	per gallon	0
" American	"	0
Phosphorus (yellow)	per lb.	0
" (red)	"	0
Potassium (metal)	per oz.	0
" Bichromate	nett per lb.	0
" Carbonate, 90% (ex ship)	per ton	16
" Chlorate	per lb.	0
" Cyanide, 98%	"	0
" Hydrate (Caustic Potash) 80/85 %	per ton	21
" " (Caustic Potash) 75/80 %	"	20
" " (Caustic Potash) 70/75 %	"	20
" Nitrate (refined)	per cwt.	1
" Permanganate	per cwt.	3
" Prussiate Yellow	per lb.	0
" Sulphate, 90 % (ex ship)	per ton	9
" Muriate, 80 % (do.)	"	8
Silver (metal)	per oz.	0
" Nitrate	"	0
Sodium (metal)	per lb.	0
" Carb. (refined Soda-ash) 48 %	nett per ton	5
" " (Caustic Soda-ash) 48 %	"	4
" " (Carb. Soda-ash) 48 %	"	4
" " (Carb. Soda-ash) 58 %	"	4
" " (Soda Crystals)	"	3
" Acetate (ex-ship)	"	16
" Arseniate, 45 %	"	11
" Chlorate	per lb.	0
" Borate (Borax)	net, per ton	28
" Bichromate	per lb.	0
" Hydrate (77 % Caustic Soda) (f.o.b.) net per ton	"	12
" " (74 % Caustic Soda)	"	12
" " (70 % Caustic Soda)	"	11
" " (60 % Caustic Soda)	"	10
" " (60 % Caustic Soda, cream) (f.o.b.)	"	9
" Bicarbonate	"	7
" Hyposulphite	"	6
" Manganate, 30%	"	16
" Nitrate (95 %) ex-ship Liverpool	per cwt.	0
" Nitrite, 98 %	per ton	29
" Phosphate	"	5
" Silicate (glass)	per ton	5
" " (liquid, 100° Tw.)	"	4
" Stannate, 40 %	per cwt.	3
" Sulphate (Salt-cake)	per ton	1
" " (Glauber's Salts)	"	1
" Sulphide	"	8
" Sulphite	"	5
Strontium Hydrate, 100%	"	3
Sulphocyanide Ammonium, 95 %	per lb.	0
" Barium, 95 %	"	0
" Potassium	"	0
Sulphur (Flowers)	per ton	8
" (Roll Brimstone)	"	6
" Brimstone: Best Quality	"	4
Superphosphate of Lime (26%)	"	2
Tallow	"	28
Tin (English Ignots)	"	83
" Crystals	per lb.	0
Zinc (Spelter)	per ton	16
" Chloride (solution, 96° Tw.)	"	5

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THE FUTURE OF NITRATE IN CHILI.

THE position which the Chilean Government has assumed of late in connection with the sodium nitrate industry has been attracting considerable attention, and in view of subsequent developments it will not prove altogether uninteresting to focus the situation.

The price which nitrate commanded about a dozen years ago was very much in advance of its value to-day, and the prospects of the industry were of a roseate hue. In consequence, numerous companies sprang into existence, all of which were to bring big dividends to the shareholders. In a short time, however, the output increased largely and prices declined very markedly, with results which were only too frequently indicated in the reports presented by a good many of the minor companies. So serious did the matter become that eventually a combination was formed to restrict the output within such limits as would enable a remunerative price to be obtained for nitrate. Just when the benefit of this combination was beginning to make itself felt upon those companies which had suffered most, the disturbing influence of the civil war in Chili began to obtrude itself. These times, however, in due course passed away and were weathered, while nitrate companies began to show satisfactory dividends.

Now that things have, so to speak, shaped well, and the nitrate industry looks for halcyon times, a new possible source of trouble has presented itself. The Chilean Government does not like to see the nitrate railways and the nitrate industry doing so well, and so suddenly assumes the rôle of the philanthropist, and sees in the apparent monopoly a danger not only to itself, but to all European agriculturalists. Minister Senor Rose has discovered that the railways and the nitrate industry have conflicting interests, and electing to defend the interests of the latter, considers it desirable to negative the concessions granted to the Nitrate Railways Company, and ratified by the Government of Peru. The moral obligations of the Chileans to perpetuate the concessions made by the Peruvian Government cannot be dealt with here. Nor do we purpose entering into the discussion of the rights of the Chileans to protect themselves; though, to judge from the way the growth and conduct of the nitrate industry is referred to, people would think the Chilean Government was having an industry, and the resources of the country, wrested from it, after having by unaided effort nurtured and developed them, instead of *vice versa*.

Undoubtedly the fact of the railways being able to charge high freights is opposed to the interests of the nitrate producers, but Senor Rose states that it is also distinctly against the interests of the public, because in consequence artificially high prices are demanded for nitrate.

The success of the Nitrate Combine in checking the output has so reduced stocks as to afford an excellent opportunity for squeezing consumers, but we are not aware that this

line of action has been adopted to an unwarrantable extent. The fact of the combination being suspended after March next, is indicative rather of tolerance, as it will allow the production to be increased, when by keeping the same down prices could have been materially advanced. The members of the combination are, moreover, aware of other factors which avert the adoption of too high artificial prices for nitrate, and they wisely took cognisance of them.

It is very kind of the Chilean Government to suddenly interest itself in the welfare of the agricultural classes in Europe, and on this ground to desire, not to increase the duty, but to allow production "to go on without any artificial restrictions whatever." There is no intention, it is stated, to force the production, and it is to be hoped that this is so, for the past with its uncontrolled production has not left a very pleasant impression on the minds of a good many in this country, whatever it may have done in other parts of Europe.

Though the duty on nitrate, which now brings the Government a revenue of over two million pounds sterling per annum, is not likely to be increased, it seems rather hard to propose to take it out of iodine, as in some cases it is to this article that companies owe their satisfactory position, the gains more than compensating for the losses on nitrate.

Such, then, is the position of affairs. The Nitrate Combine distinctly states that though the restrictions upon output are to be removed after March next, up till then they will be strictly carried out, while after that date even, the other objects of the combination will still be prosecuted. What the next step on either side will be remains to be seen, while what the outcome will be it is hard to say. Several possibilities present themselves, but so far they can scarcely be considered probabilities even, the situation in the meantime being novel and noteworthy.

THE ACTION OF LIME AND ALKALIES UPON INVERT SUGAR.

A NUMBER of experiments have been made by Jesser to ascertain the amount and nature of the non-saccharine products resulting from the action of lime and alkalies upon the invert sugar of beet juice, employing solutions which, like those occurring in practice, contain 0.2-0.4%. Caustic lime acts upon glucose at 80°C., and more intensely at 100°C., producing a decomposition, so that the neutral solution after being twice saturated still contains the same amount of lime, but combined with a smaller amount of organic matter in proportion to the amount of action which has gone on. Levulose is as much acted on at 80°C. as glucose at 100°C. Invert sugar behaves like glucose, and the acids formed neutralise 1.5 molecules of lime for every 2 molecules of glucose decomposed. Unless the action of the lime is very slight, organic substances are always produced which neither reduce nor polarise, before or after inversion, and in neutral solution are scarcely precipitated by lead acetate, but strongly by an ammoniacal solution of this re-agent. Alkali carbonates produce an almost immediate precipitate with these lime compounds, and the precipitation is considerable at the ordinary temperature within an hour. On boiling, a large part of what remains dissolved is thrown down. Invert sugar is acted upon in much the same manner by caustic potash, but this solution gives a strong precipitate with lead acetate. At the boiling point, and in dilute solution, the re-action proceeds so regularly it may be made quantitative, an excess of alkali being added and titrated back with acid, the change of colour with a litmus indicator being thus rendered sharper. An excess of alkali together with lime acts in precisely the same way. As regards the colour of the solutions it may be noted: 1, The moderate action of lime produces a brownish red dull liquid, whilst on more vigorous action it becomes brighter and more fiery; the subsequent addition of an alkali carbonate produces in the former case a slight, in the latter a considerable, darkening. 2, Moderate action of an alkali gives a clear yellow solution; more energetic action renders it dark and yellowish brown. 3, Energetic action of lime and alkali simultaneously renders it very bright and of a fiery colour. When the invert sugar in a diffusion liquid which contains 10% of sugar and 0.1% of invert sugar is destroyed, the alkalinity, expressed in lime, is reduced by 0.2 per cent.—*Chem. Zeit.*

Our Book Shelf.

REPORT ON THE SCOTT-MONCRIEFF SYSTEM OF SEWAGE PURIFICATION. By Dr. A. C. Houston. 24 pp. Numerous charts. London: Waterlow Bros. & Layton, 1893. 3s. 6d.

This brochure consists of a description of a series of experiments made at Ashted on the bacteriological purification of sewage. Although interesting as a contribution to the question of sewage disposal, the contents are somewhat disappointing owing to the occurrence of several discrepancies which are unsatisfactorily accounted for. The investigations are elaborately set forth, but some of the statements do not tally very well. Again, the behaviour of the chlorine in the effluents is most extraordinarily erratic, but the fact is merely recorded, and no explanation offered.

A great point is made of the temperature of the effluents, which is said to be of great importance, and the variations in the quality of the effluents is attributed to the thermal conditions being more or less favourable; nevertheless, as yet experiments are only recorded during the winter months, and it would be interesting to know what results could be obtained during a summer such as we have just experienced. As we have said, although interesting, we think most readers will experience the feeling that something is lacking. The crude sewage does not seem to have been tested, all the results given referring to effluents only. Possibly later on some supplementary information will be forthcoming which will increase the value as well as the attractiveness of this report on what is certainly an interesting process of sewage treatment.

QUALITATIVE CHEMICAL ANALYSIS. By W. G. Valentin. 8th Edition. Revised by W. R. Hodgkinson. 330 p.p. Index. Illustrated. London: J. and A. Churchill, 1893. 8s. 6d.

Among all the various works on qualitative analysis none, perhaps, is more widely known or universally employed than this book. It has now completed the octave of editions, and is as good as any of the latest aids to qualitative analysis that exist.

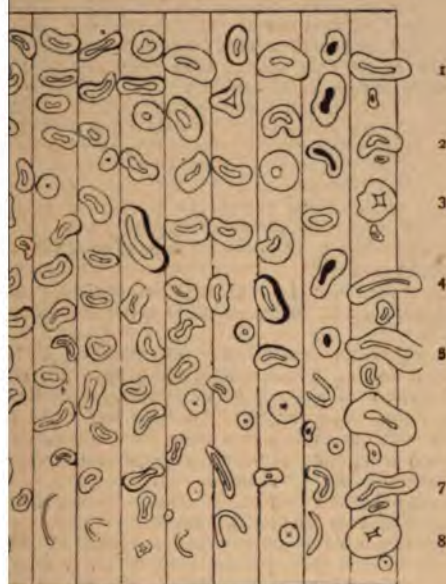
The original features of the book remain without alteration, and the additions rendered necessary by the advances of science have duly found their places. Seeing that so much has been done to modernise the work, it is rather disappointing to find that the student is still brought plump face to face at the very outset with the most unsatisfactory of all the groups, namely, group V. This is all the more remarkable, since in the tabular classification of the metals this group finds its proper place at the tail end, where it is specifically stated to be the group which has no characteristic group-agent. There is an unfortunate printer's error in the table giving the periodic arrangement of the elements where the atomic weight of chlorine appears as a whole number, the decimal point having been missed out. The matter may in a sense be a trifling one, since anybody with an elementary knowledge of chemistry would be able to correct the error, but at the same time it must not be forgotten that text books often fall into the hands of the uninitiated, who are solely dependent upon their book for instruction. The truth of the statement contained in the preface, regarding the advantage of a primary instruction in the elements of quantitative analysis, is so well known to those who have had to do with the teaching of practical qualitative chemistry, that we think no one will dispute the statement; but we feel that the introduction of quantitative exercises into a work which is, and is likely to be looked upon as a standard book of qualitative analysis is, to say the least, *outré*, and the advisability of the new departure very doubtful. The matter is worthy of separate treatment, and should be so dealt with.

Though methylated spirit is frequently mentioned for use, no cautionary reference is made to the changes which have been made of late in the nature of this solvent. Seeing the position which this work holds, it seems a pity that the map of spectra should remain uncoloured; but for all that, and despite the points to which attention has been drawn, the book justly enjoys an unequalled eminence among works on qualitative analysis, and can be unhesitatingly recommended to students who have acquired a slight knowledge of the elements of analysis.

THE SUPERIORITY OF CEYLON ANNATTO.—Ceylon annatto would seem to be hard to beat, and the credit of extracting the dye and oil from the seed most successfully, must be given to Messrs. Borron and Van Starrex. The "Kew Bulletin" referring to the annatto sent from the Andaman and Nicobar Islands, remarks, "upon submitting samples to Messrs. Fullwood and Bland, the well-known annatto makers, they reported that both the seeds and prepared dye were valueless in the English market. The fact is," continues the "Bulletin," "that Ceylon now supplies annatto dye of such excellent quality, that other countries can scarcely compete with it, except when prices are exceptionally high."

TEXTILE FIBRES.

finest transverse sections of textile fibres we have ever been recently shown to us by Mr. Abraham Flatters, street, Openshaw, near Manchester, who is now time to their preparation. The difficulties lying of the preparer of such subjects as these may be it is remembered that the diameter of a cotton fibre $\frac{1}{1000}$ th of an inch at the tip, to $\frac{1}{1000}$ th at the base, and of many of the sections noticed herein are only the ch in thickness, there is a goodly selection in transverse section, so by several stained slides of the entire fibre, showing the full length of the staple. We have examined the 8mm Zeiss apochromatic objective of 0.65 N.A., 4 mm. objective (0.95 N.A.) of the same series, using oculars, and we can say with confidence that we have specimens of such perfect preparation. The following give an idea of Mr. Flatters' work:—



SCALE: THOUSANDTHS OF AN INCH.

1. Egyptian.
2. China.
3. Red Peruvian.
4. Sea Island.
5. Extra fine Sea Island.
6. Scinde.
7. Lagos.
8. China.
9. Red Peruvian.
10. Extremes in 1-8.

of Peruvian are exceedingly instructive to all those tile matters; the "rough" is cut in slices of $\frac{1}{1000}$ th to inch in thickness, and the "smooth" is somewhat lions showing all positions from apex to base, and cons of "dead" or "unripe" cotton; the *bête noire* of The "red" Peruvian is cut somewhat thicker, and sit of endochrome in the inner tube. The Egyptian r slide of this character, not only showing endochrome r tube, but in many sections the cellulose substance is "Gallini" also exhibits a light yellow endochrome; slides to show the accretion of cellulose within the rane are those of Orleans and Texas cotton, which are under the Zeiss 2 mm. apochromatic of 1.30 N.A., pensating ocular. To those who have only studied the cotton fibre under common objectives we advise a of these remarks.

China cotton is a good specimen of well-matured fibre, skin" shows a yellow endochrome more intensely than brown. Amongst the East India cottons we have Oomrawuttee, and "Hingunghat"; in African, the Brazilian is represented by "Ceara" and "Maceio," s being cut to thicknesses varying from $\frac{1}{1000}$ to $\frac{2}{1000}$ th

slide of "extra fine" Sea Island cotton, and also of after being better than the former in point of excellence, pical point of view, showing as it does every point from ly matured, and a slight deposit of endochrome likewise.

A section of 60's yarn, and a section of bleached cotton stained with catechu concludes this series. In the latter the whole cellulose contents are stained brown, and the investing membrane made more apparent.

Amongst other textile fibres the transverse section of the stem of *Linum usitatissimum* shows the flax fibres *in situ*, whilst another slide exhibits the fibres when isolated. The stem of *Cannabis sativa* also shows the fibres *in situ*, the transverse section of the hemp fibres themselves making another slide in the series. The fibres of the *Corchorus capularis* (jute) have been very neatly sectioned, and exhibit great dissimilarity to the two former fibres. The *Behmeria nivea*, or china grass, known also as "Tchou-ma," or "Ramie," is shown by three very carefully prepared slides, the entire fibre, a section of the same showing it to be quite distinct from the flax, hemp, or jute, and a longitudinal and transverse section of the stem of the plant from which the fibres are procured. "Silk cotton," raw silk, raw wool, mohair, and others will give the reader an idea of the contents of this useful series. Mr. Flatters also prepares lantern slides showing the details of the foregoing textile fibres, extremely valuable to all those engaged in technical instruction; the slides are prepared on a micrometric background, and every detail has been so thoroughly considered in their preparation, that we have felt it our duty to bring them before the notice of our readers.

THE GAS SUPPLY OF LONDON AND LEEDS.

LONDON.

THE quality of the gas supplied to the City of London for the week ending October 14th, 1893, was good. According to the report of Mr. W. J. Dibdin, chemist and superintendent gas examiner to the London County Council, the tests made at the various testing stations showed one deficiency in illuminating power, and that against the Gas Light and Coke Co., the test being 15.9 candles. The following figures have been prepared from the report, and show the average composition of the gas calculated on the mean test:—

Company.	No. of districts tested.	Illuminating power (in stand. sperm candles).	Sulphur. Grains in 100 cb. ft.	Ammonia. Grains in 100 cb. ft.	Sulphuretted hydrogen.
		Mean average.	Mean average.	Mean average.	
Gas Light and Coke Co.	12	16.36	9.68	0.25	Nil.
South Metropolitan Gas Co.	6	16.48	11.00	0.46	Nil.
Commercial Gas Co.	2	16.35	6.95	0.50	Nil.

The standard gas supplied by these companies should have an illuminating power of 16 sperm candles, and contain not more than 22 grains of sulphur and 4 grains of ammonia per 100 cub. ft. of gas, on an average of three days, with a pressure of one inch between sunset and midnight, and six-tenths of an inch between midnight and sunset.

LEEDS.

According to the report of Mr. T. Fairley, F.I.C., gas examiner for Leeds, the total proportion of sulphur contained in the Leeds gas during the month ended October 12th, 1893, has averaged 15.22 grains per 100 cubic feet. The following are the results of tests made at the works in grains per 100 cubic feet.

Place.	Date when Tests were made.		Total Sulphur.	Ammonia.	Carbonic Acid.	
	Sept. 1893.	Oct. 1893.			Weight.	Volume.
Meadow Lane....	23, 27.	3, 11.	11.78	1.14	65.20	0.08
New Wortley	22, 28.	5, 10.	16.66	0.69	73.35	0.09
York Street	21, 28.	4, 12.	12.86	0.29	73.35	0.09
Average at Works	..	..	15.22	0.84	73.35	0.09
Average at East Parade	..	..	16.10	1.12	73.35	0.09

During the month the average illuminating power of the Leeds gas tested at 17, East Parade, the tests being calculated to a uniform consumption of 5 feet per hour, and corrected for variations in temperature and pressure to a temperature of 60° Fahr. and a barometric pressure of 30 inches, has been in standard candles (burning 120 grains of sperm per hour):—Standard argand, 24 holes, 18.3; standard batswing, 19.0; Sugg's illuminating power meter, 18.5.

OIL FROM LOCUST EGGS.—The eggs of the Algerian locust have been found to yield a thick oil resembling honey in appearance. It burns well, and makes good soap with alkali. As large quantities of these eggs are collected by the natives in order to destroy them, it is proposed to extract the oil for industrial purposes.

The World's Columbian Exposition.

FOREIGN INDUSTRIES AT CHICAGO.

(Specially Communicated.)

PROMINENT amongst the exhibits of the German chemical industries is that of the *ACTIENGESSELLSCHAFT FÜR CHEMISCHE INDUSTRIE IN MANNHEIM*.

This exhibit occupies considerable space fronting on the main court of the German Chemical Section near the central pavilion.

The exhibits in this section are installed in large cases arranged around the wall and in the centre of the court. The cases are uniformly painted in drab, touched up with gold, and neatly ornamented with carving.

Unlike many countries the Germans have formed Associations in the different branches of manufacturing trades, and by concerted actions have achieved a work well nigh impossible where only individual exhibits have been installed. The advantages of this may readily be understood when it is realised that all exhibits are placed on the same footing, and the merits of the wares are dependent not on the surroundings but their intrinsic perfection.

It would be impossible to enumerate the individual exhibits in this large collection shown by the manufactory above referred to, still less to enlarge upon the excellency of the goods. No firm will show products which are not as perfect as the industry can produce, and the chemicals here displayed are magnificent specimens of their kind. Standing on either side of the show case are cylinders containing liquid anhydrous ammonia, liquid chlorine, and other substances that it is necessary to store under great pressure. Arranged between these and along the front are acids, ammonia salts, antimony, barium, calcium, copper, iron, magnesium, sodium, strontium, tin and zinc salts in magnificently cut-glass jars, and under glass capsules. Against the wall are large paintings of the company's works at Rheinau and Barmen, giving bird's-eye views of the large tract of land covered by their buildings.

This company carry on at Rheinau (Baden) and Barmen, the manufacture of Chemical products principally liquified gases (carbon dioxide, ammonia and sulphurous acid), and further ammonium, barium, strontium, and metallic salts, liquid ammonia, boric acid, sodium nitrite and sulphide, carbolic acid, and picric acid, &c.

Of the products a large proportion is exported. The business has largely expanded of late years. In the first year the returns only amounted to 460,000 marks, whereas at the present time they exceed 4,000,000 marks.

The share capital is 1,000,000 marks, and there are two hundred workmen and over forty other employés.

From these figures but a small idea of the immensity of the works can be gained, but an examination of the exhibits which the enterprise of so large a commercial institution has prompted them to install intimates a wonderful amount of skilled manipulation to be envied by all engaged in this branch of the trade.

The use of tin salts as preservatives of wood is becoming as the German forests are gradually disappearing, a most important economic consideration. The production of these salts at a low cost would not be practical under ordinary conditions. At Barmen the salts are prepared from refuse tin, by electrolysis and are thus produced at such a low figure as to place them within the reach of all requiring them extensively for the above-mentioned purpose.

The introduction of liquified anhydrous ammonia for refrigerating purposes has caused the adoption of cylinders for storing this gas. At the same time carbon dioxide, in a condensed form, has become a permanent article of commerce, and the demand for chlorine also in this form for use in the arts has increased to such an extent that special arrangements were necessitated for its manufacture.

The unusual facilities possessed by this firm for turning out great quantities enable them to profitably manufacture and export these goods. The use of anhydrous chlorine in gold refining dates back but twelve months, but anhydrous ammonia in liquid form has been in use for some years. American enterprise has not yet suggested the manufacture of these gases on any very extensive scale, so that for a time at least Americans are largely dependent on Germany and other countries for such chemicals.

A PAPER FACTORY DESTROYED.—A destructive fire broke out at Messrs. W. Campbell and Company's wallpaper factory, West Forty-first-street, New York, Wednesday last week. The entire building with most of its contents was burnt out. The flames rapidly spread to Messrs. Haviland and Nevins' paper mills, a piano factory, and a furniture works, as well as several dwellings. The total loss is estimated at £700,000, and the losses of Messrs. Campbell and Co. are calculated to be £400,000.

EXTRACTION OF GOLD AND SILVER FROM PYRITES.

By J. G. SALTMARSH.

I.

IN manufacturing processes, and especially those of a chemical nature, the bye-products and residues have assumed an importance great as to almost overshadow the primary products for which the works may have been started or which have given their name to the respective branches. Instances if mentioned would be countless, for rank in interest none could come before those occurring in the works.

Such works have gained their notoriety for several reasons, in the fact of the tremendous competition which they suffer from the complexities arising from the vast and unaccommodating quantities of products.

Pyrites would not be without interest as a specific example, possibly more so in the attempts to extract the two valuable metals, gold and silver.

Argentiferous ores, which only contain $\frac{1}{2}$ per cent. to $\frac{1}{10}$ per cent. of silver, worked at a profit by the ordinary method, and in many cases as low as $\frac{1}{10}$ per cent. may pay for their extraction. But in pyrites the limit has gone much farther, silver being extracted from ores containing as low as .003 per cent. Thus the three most important ores employed in English works contain:

	Copper, p.c.	Silver, Oz. troy per ton
Rio Tinto	3.80	1.20
Tharsis.....	3.50	0.75
San Domingo.....	3.70	0.75

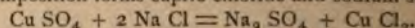
A sample of Rio Tinto pyrites, an average of 4,725 tons of ore, contained 2.07 per cent. of copper, and an average of 701 tons 2.5 per cent. of silver in the burnt ore or pyrites cinders would yield .0037—'0023.

In general the object in the extraction of silver is to convert it into an alloy with lead, which is easily separated from the residue by cupellation.

In the actual process for the extraction of silver from the liquors obtained in the extraction of copper are specially adapted. The extraction of copper is now very generally adopted in nearly every case by the "wet method." The percentage of copper in cupreous pyrites now used in alkali works is about 10 per cent., Tinto being often as low as two, and Seville as high as 15 per cent. cinders after burning the ore are far too poor to be extracted by smelting, and besides that the resultant metal would be impure as to make it practically valueless.

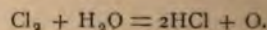
The method used is based upon the idea of Sterry and Longmaid, and patented by Henderson, which is that of roasting the ore with salt, and finally precipitating the copper with sulphur. The sulphur required for the wet extraction should be about one-half times as much as the copper. If the ore be too well burnt, pyrites is added. The copper exists most probably to the extent of 70% as copper oxide, and it is therefore necessary to have sulphur present for this amount to turn into sulphate. The ore is coarsely ground, and from 10 to 20 per cent. of salt added in the form of hand furnaces, whilst only 7½ per cent. is necessary in the furnaces with revolving hearths as introduced by Gibb and George. A sample of good working mill ore would be 30 cwt. 24½ tons, copper being present to the extent of 3.52%, and sulphur 37%. The ore and salt should pass through a sieve eight meshes to the inch. The calcination takes place in reverberatory furnaces at low temperature heated with gaseous or solid fuel.

The ore must be very thoroughly roasted, so that the whole of the copper is converted into sulphate, which in the presence of the mutual decomposition forms cupric chloride and sodium sulphate.



Like most reactions carried on with large quantities and under conditions which are by no means uniform, this equation does not give the whole of the truth. Copper chloride is possibly formed in the furnace independently of the above reaction. The chlorine is evolved from the calcination, and George E. Davis has proposed the use of steam to oxidise the $\text{Cu}_2 \text{S}$.

Hydrochloric acid is also formed, which combines with the copper, and zinc.



At too high a temperature, oxychloride of copper and cuprous chloride are formed with the volatilization of cupric chloride.

The final result of roasting behaves as follows:—

75 % sol. in water (Cu Cl_2)
20 % " " (HCl (Cu O))
5 % sol. HNO_3 ($\text{Cu}_2 \text{S}$).

The mass is then placed in lixiviating tanks made of wood, lined with hot coal tar. Each tank is filled with calcined ore, and

a previous washing is added. After one or two hours the off. Six, seven, or eight washings are given, but the first contain about 95 per cent. of the silver, are reserved for. Thus three liquors analysed:—

°Tw.	Ag. grs. per gall.	Total Ag. in ppt tank. grs.	After ppt. of Ag. grs.
54°	6.2	10,930	1,125
50°	4.3	7,416	1,350
40°	3.8	6,642	1,125

chloride is almost insoluble in water, but is somewhat soluble in water containing sodium chloride. Thus at 100°, 100 parts saturated with sodium chloride dissolve 0.4 parts of silver

chloride after lixiviation is technically known as "blue billy" ore, and is of some value as an iron ore, but a difficulty is found in smelting it, owing to its fine state of division. It is fully used for setting puddling furnaces. The process for its conversion into iron has been in several cases fatal, the London Company giving it two years' trial without success, and losing all its capital. A method is yet to be found. In this stage of the operations that the silver and gold are which exist as chloride in the liquors. These valuable metals are now generally recovered by what is known as Claudet's process, which consists in precipitating the silver with a soluble iodide, the silver chloride into silver iodide, which is insoluble in water. Soluble bromides have been tried, but unsuccessful. The difference in the behaviour of silver chloride and silver iodide may similarly be noted in the fact that the iodide is soluble in ammonia.

The three first washings are employed, as they contain the whole of the silver. The liquors before they undergo the operation are completely settled, run into a gauged tank and the contents of silver accurately estimated in the laboratory by titrating a certain volume of hydrochloric acid and a solution of potassium iodide, and afterwards potassium iodide. The precipitate is filtered, washed, dried, and fused with a flux of soda, lamp black, the melt being stirred with an iron nail or operation is carried on in clay pots or crucibles. The regulus obtained is cupelled, and the silver bead accurately weighed. The quantity of KI is then calculated from the results of the titration, and a solution of it is added to the liquor sufficient to precipitate the whole of the silver. Some of the iodide added is taken lead to form lead iodide. The silver is most probably precipitated before the lead, but owing to the small amount present the silver necessarily comes into contact with the lead before entirely precipitating the silver. The liquor, after being tested for unprecipitated silver, is then passed on, and the copper precipitated by scrap iron in the form of old bale hoops.

The precipitate, consisting mainly of silver iodide, is now washed to remove as many soluble impurities as possible, and treated with water, whereby the heavy metals are reduced to the metallic state. The following is an analysis of such a precipitate:—

	Per cent.
.. .. .	12.48*
.. .. .	0.085†
.. .. .	55.24
er	1.82
.. .. .	7.52

* 4.076 oz. † 27 oz. 15 dwts.

The soluble portion consists mainly of zinc iodide, which is filtered and employed again in the place of iodide of potassium.

(To be continued.)

RATES AND THE SHIP CANAL.—During the hearing of the Trade inquiry at Westminster recently into the objections of traders to the schedules of maximum rates and tolls to be levied on the various canals throughout the country, favourable evidence was made several times to the Manchester Ship Canal. A field drysalter, whose goods were at present carried on the Huddersfield Navigation Canal from Goole, speaking on behalf of the traders in his district, said that if there were any increase in the tolls on that waterway the traders intended to try the new canal between Liverpool and Manchester. The present system is to have goods brought to Goole, whence they are discharged into barges, which are then towed by the Calder and Huddersfield Company to the towns on the canal. The speaker, however, submitted that if there were any increase in the rates of the Yorkshire canal it would be greatly to the benefit of the trader to have his goods brought via Liverpool and the Mersey. The solicitor representing the Wakefield Chamber of Commerce also referred to the Ship Canal, and said that the Calder and Huddersfield Navigation Company were paying four per cent., a dividend of 10 per cent. on the Manchester Ship Canal shareholders would be quite sufficient to receive.

TESTING FATS AND OILS.

By DR. E. MILLIAU.

(Continued from page 259).

FLUID VEGETABLE OILS.

Olive Oil.—Olive oil, like other vegetable oils, is a mixture of neutral glycerides, oleine, stearine, palmitine, etc., and a variable quantity of free fatty acids. It is the edible oil *par excellence*, and the south of France owes a portion of its prosperity to the cultivation of the olive tree. This culture is to day almost precarious in certain countries, though the consumption continually increases, and olive oil always enjoys the just title of uncontested superiority. We can only attribute these remarkable results to the adulterations made for the purpose of selling under the name of olive oil, seed oils, or adulterated olive oil. We would be easily freed from these adulterations if chemists had at their disposition absolutely sure means to recognise them. Unfortunately the similarity of composition and reaction of the various vegetable oils render the demonstration of their presence extremely difficult. In face of the prejudice caused by adulteration the greatest efforts have been made to solve the problem, and although the results have not been sterile, they have not yet reached a satisfactory solution. It is necessary to say that if certain adulterations succeed in selling seed oils disguised as olive, they reverse the problem for the chemist by making him seek olive oil in seed oil. I may remark that the fraud is not always so great; very often the proportion of seed oil is not higher than ten per cent. Consequently for our method of analysis to be considered absolutely good it must give results, without recourse to comparisons, which satisfactorily show five per cent. in a mixture. Under these conditions we are certain to discover adulteration when made in the proportion of ten per cent.

Let us rapidly review the general processes for the recognition of peanut, sesame, cotton-seed, and poppy oils in olive oil, and we must acknowledge that none of them demonstrate less than ten per cent.

Specific Gravity.—The specific gravity of olive oil varies from 0.915 to 0.918. We have 0.917 to 0.918 for undecorticated peanut, 0.921 for decorticated peanut, 0.923 for sesame, 0.921 to 0.924 for cotton-seed oil, 0.924 for poppy oil. These variations of density in the olive oil do not allow us to recognise a mixture with any degree of certainty.

Action of Nitrous Fumes.—When taken from the water bath, if the oil contains a fairly large proportion of peanut oil, it will appear wine red. Pure olive oil is, on the contrary, lemon yellow. When taken from the cold bath a complete solidification is observed with pure olive oil, which has the appearance of very light fresh butter. With a mixture of fifteen per cent. of all other oils there is no solidification. This method gives good means of detecting peanut and poppy oils in edible, but is of less use when applied to oils used for industrial purposes, which may not solidify though pure.

Sulphuric Saponification.—The rise of temperature of olive oil is 35°, the relative 94°. A rise of temperature above 35° usually indicates adulteration. Equal or lower results do not absolutely indicate purity because certain pure olive oils give only 31°, 32°, and 33°, and in consequence after the addition of seed oils show only 34°-35°.

Indices.—The iodine number varies from 80 to 85, and in a certain measure helps us to discover seed oils. It likewise offers us a quantitative method with a mixture of known oils. The variation in composition of the same oil spoils its sensitiveness for determining mixtures from five to ten per cent.

We will not mention the other general processes, but will dwell particularly on the special reactions which characterise the presence of the three oils most frequently used to adulterate olive oil, to wit, peanut, sesame, and cotton-seed.

These processes have a much greater analytical value than the general ones; for if in the course of analysis we find unsatisfactory results with the latter, we can detect adulterations with certainty by the former.

Examination for Peanut Oil.—The density is almost the same. The sulphuric saponification, and above all the Cailletet process give us good results, but only the presence of arachidic acid $C_{25}H_{51}O_2$, melting point 75°, allows the sure recognition of the presence of peanut oil. We have adopted with slight modifications the method of Renard. Twenty grams of the oil are saponified by 20 cc. of a caustic soda solution 36° B., diluted in 100 cc. alcohol ninety per cent. The soap formed is precipitated by a fifty per cent. solution in alcohol of lead acetate, which must be neutral. After complete precipitation decant while warm and wash the residue with alcohol, which after being ground in a mortar is agitated with 200 cc. of ether. This operation is repeated three times to remove the last traces of lead oleate, soluble in ether. The residue is then put in a porcelain dish containing two or three litres of distilled water and fifty cc. hydrochloric acid. When decomposition is completed the solution is decanted and the fatty acids washed with distilled water, after which they are dried in an oven to remove the last traces of water, when they are dissolved in 40 cc. of ninety per cent. alcohol. A drop of hydrochloric acid is added, and

the mixture chilled to 15°. Peanut oil gives a generous deposition of arachidic acid crystals. These are washed twice, using twenty cc. each time of ninety per cent. alcohol, then three times with twenty cc. each time of seventy per cent. alcohol, in which arachidic acid is completely insoluble. The washing is complete when a few drops give no residue on evaporation. The acids are warmed slightly and treated with boiling absolute alcohol. After filtration the alcohol is evaporated in the oven at 100° till the weight of the residue remains constant. If the melting point of the residue is between 73° and 75° we can affirm the presence of peanut oil. We must be sure of the freedom of the fatty acids from all traces of the oleic acid, which prevents their crystallization. This elaborate but truly scientific process must be carried out only by skilled hands.

Examination for Sesame Oil.—To recognize sesame oil in olive oil we can use the specific gravity, the sulphuric saponification and Cailliet process, but especially the method which we use in our laboratory, and which consists of the reaction of hydrochloric acid and sugar upon the fat.

We do not operate on the glyceride, but on the derived fatty acids. If the oil is operated on directly we can obtain a red or pink colouration with a perfectly pure olive oil. I have frequently observed this colouration in my laboratory with olive oil from Tunis, Algiers, Molfetta, Bitonto (Italy), and more rarely with those from Provence. This colouration comes from the colouring matter dissolved in the juice which flows out along with the oil from the presses. This can be shown by treating the separated juice with hydrochloric acid and sugar with which it gives a colouration exactly resembling that given by sesame oil. It is, therefore of the highest importance to work with pure fatty acids according to the process I am about to describe and which has been called the Milliau process.

Method of Operating.—We saponify fifteen cc. of the fat under examination with ten cc. of the solution of caustic soda, 36° B., with the addition of ten cc. ninety-two per cent. alcohol. When the boiling mixture becomes clear we add 200 cc. hot distilled water and boil to expel the alcohol. Then decompose with ten per cent. sulphuric acid. The fatty acids are removed from the surface in the pasty state, washed by shaking in a test tube with cold distilled water, after which they are heated in an oven to 105°. When the greater part of the water is eliminated and they commence to melt, we pour them on half their volume of pure hydrochloric acid which has been saturated in the cold with finely pulverized sugar. The mixture is shaken violently in the test tube. The presence of sesame is always distinctly indicated by the rose or red colouration of the acid solution. Other oils leave the acids colourless or communicate to it a slightly yellowish tinge. This reaction is extremely delicate and permits the sure recognition of the presence of one per cent. of sesame oil, not only in olive oil, but in all fatty mixtures as well as in soap.

This process was awarded a gold medal by the Société d'Encouragement, in 1888.

Examination for Cotton-Seed Oil.—Till recently the detection of cotton seed in olive oil was considered impossible, and accordingly the different scientific societies and several chambers of commerce promised great prizes to the inventor of a process which would detect this adulterant. Two simultaneous methods were proposed, one by an Italian savant, M. Bechi, the other by myself. These two processes, which at first sight appear quite analogous and based upon the same reaction, differ completely from the scientific standpoint as well as in the exactness of the results obtained. M. Bechi has based his process upon the direct action of silver nitrate upon the oils. As long ago as 1878 we made some experiments with M. Puget of a similar nature, and the uncertainty of the reactions led us to abandon them entirely. M. Bechi's process possesses the serious inconvenience of causing us at times to reject, as adulterated, oils which are absolutely pure, and thus work injustice and create a considerable prejudice against the firms which have sold them. From results obtained at L'Institut National Agronomique de Paris, as well as in other laboratories, a deep colouration has been found with oils absolutely pure. Outside of these inconveniences, which are sufficient to cause us to throw it aside, it has the defect of being based upon a colouration having no well-defined chemical character, and it produces effects with different substances the action of which it is impossible to explain. The use of colza oil has the serious fault of bringing into the reaction a second oil which may be impure and completely nullify the results. Finally, the conclusions reached by the Italian scientific commission instituted at Rome by act of the Ministry to study the Bechi process show that it is not certain on quantities of less than 15 per cent. It solves the problem of finding less than 10 per cent. no better than the Cailliet process, which shows the presence of 15 per cent. The same commission declared also that olive oil containing glycerine, free fatty acid, formic and acetic acids, does not give a sure reaction with the Bechi reagent. Since all olive oils contain free fatty acid from several tenths of one per cent. for virgin oil to 100 per cent. in some industrial oils, what conclusions can we arrive at?

The Bechi process will give, from 15 per cent. up, a brown colouration of variable intensity. But in oil containing cotton-seed oil, which

is fresh and well-refined, the only sort used for edible purposes, have a very weak reaction; while with an olive oil perfectly containing organic or mineral matters in suspension or solution have an action upon the reagents, we would have a pronounced reaction. That is why I gave up these uncertain and variable obtained in 1878, and studied the action of nitrate of silver, the oil itself, but upon the products of saponification derived. The results obtained exceeded my expectations, and have been published by the press as the Milliau process.

Milliau Process, Mode of Procedure.—In a porcelain dish capacity, 15 cc. of the oil to be investigated is heated to about mixture of 10 cc. of a solution of caustic soda at 36° B., and alcohol at 90° B. is then slowly poured on the oil. When boils it becomes clear and homogeneous; 150 cc. of hot distilled is added, and boiling continued to expel the alcohol. The fatty acids are displaced with 10 per cent. sulphuric acid solution added excess, and the pasty acids immediately collected with a small spoon. They are washed by shaking several times in a test tube an equal volume of cold distilled water, the drops of water are dried and they are then poured into a tube 2.5 cm. in diameter and 90° 15 cc. of alcohol, 95 per cent., and 2 cc. of 3 per cent. nitrate solution are added. The tube is protected from the light in a bath at 90° C. till about one-third of the alcohol is expelled, replaced by 10 cc. distilled water. The heating is continued minutes, and the colouration of the insoluble fatty acids is observed. The presence of cotton-seed oil in any proportion whatever produces a mirror-like precipitate of metallic silver, which blackens the surface of the mixture.

The members of the Agricultural Committee, composed of the savants of France, after having tested the process on 125 samples from different provinces have had the kindness to confer upon me a gold medal for this method of analysis, and I take the liberty to publish the conclusions of their secretary:—"The preliminary saponification applied to the examination of fatty matters constitute a new method which we can confidently rely, not only in the analysis of adulterated oils, but besides of those used for industrial purposes, and soaps. It has for effect not only to give an extremely sensitive method but it also eliminates accidental and secondary products which mask the reaction and deprive it of precision."

It is of course well understood that the same processes can be applied for the detection of peanut, sesame, and cotton-seed oils in fatty mixtures.

Peanut Oil.—Peanut oil apart from the arachidic acid it contains presents no special characters.

Sesame Oil.—The purity of sesame oil may be demonstrated by shaking ten cc. of oil, first with five drops of sulphuric acid and then with five drops of nitric acid at 28° B. The oil undergoes a progressive change of colour, through various shades from light red to red; the final red colouring matter obtained by this oxidation turns yellow by the action of alkalis and returns to its original colour with acids. This curious phenomenon does not take place with all oils, but is obtained sometimes when working on sesame oil adulterated; besides the industrial oils from hot pressing which give, though pure, negative results. I have devised a rapid process which is applicable for the recognition of castor oil in the industrial sector.

Milliau Process.—For the rapid identification of castor oil in sesame ten grams of the oil are shaken up with four drops of nitric acid at 66° B., a drop of nitric acid at 40° is added and the mixture violently; pure sesame oil blackens immediately, while that of castor oil remains turbid yellow.

Cotton-seed Oil.—From a chemical standpoint we have nothing particular to say. From the industrial point of view we may say that this product becomes more useful every day, that its cheapness induces everybody to use it, and this fat material daily augments its place in the markets of the world.

We will go rapidly over the drying oils, poppy-seed, linseed, camelline, over those of the *cruciferae*, colza, rape, and mustard, as well as the oils of the sweet almond, hazel nut, and castor.

I will take the opportunity, however, to mention a rapid method which I have found for detecting the presence of castor oil in oil. It is well known that the oils in general are soluble in petroleum ether, while castor oil, which distinguishes itself by its solubility in a likewise remarkable for its insolubility in petroleum ether. Naturally this insolubility disappears at the ordinary temperature, and castor oil is adulterated with a small proportion of a soluble oil.

It is only necessary to demonstrate its insolubility by shaking a test tube one volume of the oil to be examined with two volumes of petroleum ether, and cooling the mixture to 16° C., at the end of a few minutes the mass coagulates and the oil separates if castor oil is present, while the liquid remains homogeneous if it is pure. This phenomenon is especially curious because it will be noted that the freezing point of castor oil unmixed with petroleum ether is lower than the majority of other oils.

(To be Continued.)

THE OWENS COLLEGE CHEMICAL SOCIETY.

THE winter session of this society was opened by Prof. T. E. Thorpe, on Tuesday. The subject of the lecture, which was very well attended, was "Carl Wilhelm Scheele," the eminent Swedish chemist. The lecturer said there were few more striking or romantic figures than Scheele—a modest learned man, who, despising all show, had the courage to live obscurely, whose zeal did not need to be excited by praise, and who, well known to the chemists of his time, but almost ignored by his century, had rendered his name immortal before even he had become celebrated. He succeeded by the sheer force of his genius as an experimentalist, and under the influence of a passion which defied difficulties and triumphed over despair in changing the entire aspect of a science. His name was associated with some of the most remarkable discoveries of the eighteenth century. Comparatively little was known of his personal surroundings, habits of life, or the nature of his work. Born on December 9, 1742, he was at the age of fourteen apprenticed to an apothecary, in whose laboratory he acquired a practical acquaintance with the chemical and pharmaceutical knowledge of his time. It was while he was at work at Stockholm, after the year 1768, that his name first appeared in chemical literature as a discoverer. Professor Thorpe traced the current of Scheele's uneventful personal history, which led him to the observation that after all the true history of the man was to be found in his works. His strongest inclination was to experiment, and he carried his investigations into every department of chemistry. The lecturer enumerated Scheele's manifold discoveries and new processes, and mentioned that the crowning work of his life was his book on fire and air, which on its production, vexatiously delayed for two years by the printer, was translated into every European language. Despite Scheele's weakness as a theorist, his work stamped him as the greatest chemical discoverer of his age, and his story constituted one of the most striking examples of what might be achieved by the diligent cultivation of a single natural gift.

Correspondence.

* * We do not hold ourselves responsible for the opinions expressed by our correspondents.

"A NEW FEATURE IN THE ADULTERATION OF VINEGAR."

(To the Editor of *The Chemical Trade Journal*.)

SIR,—I have been interested in the various cases of the adulteration of vinegar which have appeared from time to time lately, but no case has surprised me so much as the one at Manchester, the particulars of which you gave in your issue last week. Mr. Estcourt, a public analyst, condemns a sample of vinegar because it contains only 3% of acetic acid, and brands it as being adulterated with 30% of added water. Now, sir, it is a well-known fact that vinegar has always been sold in the trade of various strengths which are designated 16 to 24 respectively, equal to 3% for the lowest number 16, and 5½% for the highest number 24, which a reference to any standard work on chemistry will confirm. I trust Messrs. Grimbly and Co., the manufacturers of the vinegar in question, for their own reputation as well as for the trade in general, will protest against this interference with legitimate business, by appealing against the grave injustice of this magisterial decision.

Yours, &c.,

M. CANNON.

ANSWERS TO CORRESPONDENTS.

W. A.—They have been duly despatched.

J. B.—Yes.

P. G. G.—Declined with thanks.

P. A. (N. J.).—We trust the matter is now to your satisfaction. You will see have done what we could.

J. H.—As soon as possible. This week most likely.

D. K. & Co.—It can be taken from any date. Annually is obviously the cheapest in the long run.

G. C. D.—We beg to acknowledge communication, for which many thanks.

G. C. & T.—We have done as you requested.

E. J. W.—We shall be pleased to hear from you further.

THE SALMON FAILED TO APPRECIATE.—The fish in the River Doon (Scotland) have been poisoned by liquor discharged into it by an iron company. Immense quantities of dead salmon are being taken from the river.

Trade Notes.

A POLISH CEMENT WORKS.—A new Portland cement factory is about to be established at Firlejow, near Lublin, Russian Poland.

BARIUM CARBONATE FOR GLASS-MAKING.—We notice Messrs. Julius Hulsen & Co., of Newcastle-on-Tyne, are making a speciality of precipitated barium carbonate for making crystal, optical, and plate glass. It is intended to substitute red lead in the two former glasses, and to replace a larger percentage of alkali in plate glass than is permissible with the use of chalk. By the use of barytes it is claimed that the infusibility of the glass is not impaired, and the tendency to decompose is decreased. The product contains 96/98% of barium carbonate (99% dry), and the impurities are trifling, it being almost absolutely free from iron, lime, and alkalis.

PERSONAL.—Mr. George Chaloner having resigned the position of Lecturer on Chemistry at the Birkbeck Institution, which he has held for a quarter of a century, it is thought that many of his old students and friends will be glad to combine to present him with some mark of goodwill and esteem on the occasion of his retirement. With this view, a committee is being formed to consider the form of the testimonial, to receive subscriptions, and to make arrangements for the presentation. A preliminary meeting will be held on Tuesday, October 31st, 1893, at 43 and 44, Holborn Viaduct, E.C., at 7 p.m., when persons interested are invited to attend; and in the event of their not being able to be present, further particulars can be obtained from Mr. E. G. Clayton, 43, Holborn Viaduct, London, E.C., and Mr. H. Trewby, Radnor House, Hornsey, N.

UNPROTECTED MACHINERY.—Recently, at the South Western Police Court, London, Mr. Haden Corser heard a summons against the Projectile Company, Limited, New-road, Wandsworth, at the instance of Mr. Jasper Redgrave, one of her Majesty's inspectors of factories, for neglecting to maintain the fencing on certain dangerous machinery at their works. On August 30 one of the men employed at the company's works was walking along a narrow gangway between two sets of lathes when he slipped and put out his arm to save himself. It was caught in the cog-wheel and severely injured, although no bones were broken. The injuries necessitated the man's removal to the hospital. For the defence it was contended that the man in some degree contributed to the unfortunate occurrence by walking along the passage-way when the machinery was in motion, this being in contravention of the regulations of the establishment. A penalty of £20. was imposed, with 11s. costs.

TRIAL OF A GAS TRAMCAR.—A tramway company near London is trying a new car on a portion of its route. The car is known as the Lührig gas car, and is a German invention, propelled, as its name implies, by means of gas. It is self-contained and has a running capacity for about 15 miles. Refilling can take place in about 70 seconds through an ordinary indiarubber delivery hose fastened on to a nozzle in the body of the car. There is no smell or vibration and very little evidence of the waste gas going into the atmosphere. From experiments carried on by Professor A. B. W. Kennedy, it has been found that in ordinary circumstances the cost of traction will be reduced by about 65 per cent. The gas is ignited by an electric spark, and the motive power, which consists of two double-action 7-HP gas engines, is completely hidden, together with the fly-wheel, at the back of the seats. Major-General Hutchinson, Board of Trade inspector, has expressed his approval of the car, and passed it, subject to the carrying out of certain minor alterations.

TOO MUCH ADULTERATION.—At the Manchester County Court, recently, His Honour Judge Heywood tried a case in which Messrs. A. Crosbie (Limited), Wolverhampton, claimed from Messrs. J. L. Cardwell and Co., drysalts, Cross-street, Manchester, the sum of £10. 10s., being the price of four tons of red oxide at £2. 12s. 6d. per ton. The defendants complained that the oxide contained white specks, and was not according to sample on which the purchase was based. It was admitted that the cheaper kinds of oxide were reduced, but it was not the addition of the adulterant that was objected to, but the appearance of the oxide. Mr. Crosbie said there were no white specks in the sample he supplied to the defendants. The sample he gave them was taken from several casks so that it might represent the bulk. The bulk sent to the defendants was the same as the sample; it was made in exactly the same manner and of the same ingredients. The presence of white specks in the oxide would not diminish its value for nine out of ten purposes.—in fact, for any purpose that he knew of. The lowest price he had ever heard of for oxide was the price at which this lot was sold. He had known it get as high as £18 and £20. Eventually the Judge decided on the evidence before him that the bulk did not correspond to the sample, and found for the defendants, with costs.

Market Reports.

TAR AND AMMONIA PRODUCTS.

Benzol is again quiet, and we have the curious circumstance that 50's are dearer than 90's. This shows at once how the industry has been affected by carbonising, and by the recovery of benzol from coke ovens. In a well-regulated carbonising works 90's is the only product which should be gained, and the state of the market clearly shows us that the product obtained from ordinary gas tar is now worth more than that obtained by carbonising. 90's are to-day worth only 1s. 6d., while 50's are value for 1s. 7½d. Creosote is a little quieter, the rush for it not having been equal to what was anticipated, and steam users are preferring a common petroleum to the coal tar product. Anthracene remains *in statu quo*, and the same may be said of pitch.

The sulphate of ammonia market is in a strange position. There is not much offering, but parcels are readily picked up by the dealers (at their own prices, of course), while stocks and production are small. Consumers are without supplies, and still nobody has a good word to say for the market. While the "Bear" manoeuvres last, not much improvement must be expected. The market is in fact for the time being in the hands of the dealers, they having skilfully influenced consumers to withhold their orders, and until direct orders come in, the speculators will keep prices on the downward grade. Quotations emanating from the dealers are £12. 11s. 3d. to £12. 12s. 6d. for spot, and £12. 10s. November-December delivery.

MISCELLANEOUS CHEMICAL MARKET.

In the alkali trade the position as regards fuel is almost without change, and in consequence of the continued great scarcity of caustic soda, prices are well maintained both in Newcastle and Lancashire districts. Current prices are as follows: f.o.b. Tyne, 77%, £12.; f.o.b. Liverpool, 74%, £12.; 70%, £11.; 60%, £10.; cream, 60%, £9. 15s., 10-ton lots and upwards. In bleaching powder supplies are sufficient to cover requirements, and prices quoted are £8. 5s. f.o.r. makers' works, and £8. 10s. f.o.b. Soda ash remains quiet and without change, but as stocks generally are light, prices have a firmer tendency. Soda crystals in steady request, but without change in prices. Saltcake still seeking buyers. Chlorate of potash quiet, with but little demand, and 8¼d. to 8½d. are current quotations. Soda firm at 9¾d. per lb. Recovered sulphur moves rather more freely, but price has not improved. Vitriol and muriatic acids continue scarce, and prices are strong. Sulphate of copper finds a better market at £16. 5s., f.o.b. Acetates of lime firm in price, with good demand—brown £7., grey £11. 10s. per ton. Other acetates are without any material change in position. Potash, caustic and carbonate, is in fairly active request, both for present and forward supplies, and the prices are well maintained. White powdered arsenic meets with moderate demand at former prices, viz.: £13 to £13. 5s. at Garston, and there is rather more offering. Borax sells slowly at £27. and £28., according to quality. Oxalic acid dull at 3¼d. Nitrate of soda continues somewhat difficult of sale. Prices for spot delivery are £9. 2s. 6d. to £9. 7s. 6d.

REPORT ON MANURE MATERIAL.

During the week the market has been quiet, and prices remain for the most part as last reported. There are sellers of 75/80% Florida phosphate rock at 8½d. per unit, in cargoes, cost freight and insurance to good United Kingdom ports, and probably a shade less would be accepted to induce important business. Peace River and South Carolina River rocks continue scarce, and for early shipment about 8d. per unit would probably have to be paid. For shipment River Plate bones are still neglected, and £4. 10s. to £4. 11s. 3d., according to size and date of shipment, is nearest closing value. Crushed East Indian bones are scarce, and a good deal enquired for. Nothing under £4. 17s. 6d., ex quay Liverpool, would be cabled out for Kurrachees, and January-February steamer shipment would be the earliest shippers would undertake. East Indian bone meal is also a scarce article, and there would be no chance of business under £4. 17s. 6d., ex quay Liverpool, January-February steamer shipment. Owing to arrivals, nitrate of soda is easier on spot, there being now sellers at 9s. 1½d. per cwt., good quality. Due cargoes are worth about 8s. 11d. per cwt., ordinary quality, and October November shipments 9s. 1½d. per cwt. There is nothing offering in miscellaneous manure materials, and we do not hear of any business done during the week.

THE METAL MARKETS.

LONDON, WEDNESDAY.—Pig iron active. Scotch warrants closed at 42s. 3d. cash, Middlesbrough 34s. 8d. cash, and hematite 44s. 6d. Copper, active: Chili bars, G.O.B.'s and G.M.B.'s closed at £42. 6s. 3d. to £42. 13s. 9d. cash, and £42. 13s. 9d. to £43. 1s. 3d. three months. Tin, firm: Straits closed at £78. 12s. 6d. to £79. 2s. 6d. cash, and £79. to £79. 10s. three months; Australian, £79. 5s. Lead, firm: Spanish, £9. 12s. 6d. to £9. 13s. 9d.; English, £9. 15s. to £9. 17s. 6d. Silesian spelter: Ordinary, £6. 17s. 6d. Nickel, 1s. 8d. Antimony, £37. 10s. Quicksilver: First hands, £6. 10s.; second hands, £6. 8s. 9d. Copper shares, quiet: Cape, 1¼ to 1½. Copiapo, 1⅞ to 1⅞. Libiola, 2¼ to 3. Mason and Barry, 1½ to 1¾. Rio Tinto, 13¾ to 14. Tharsis, 4¾ to 4¾.

WOLVERHAMPTON, WEDNESDAY.—Market again firm, owing to state of coal and pig iron supplies. Business light, but buyers' stocks are so small that should the strike soon end a considerable revival in iron would immediately follow. Marked bars remain at £7. 10s., merchant bars £6. 10s., and common £6. Plates: £7. for tank sorts, and £8 to £9. for boiler sheets, £7. singles, and £7. 2s. 6d. to £7. 5s. doubles; Derbyshire and Northampton pigs 45s. to 47s., Staffordshire common 36s.

GLASGOW, WEDNESDAY.—Market firm, with moderate business. Scotch done at 42s. 3d. and 42s. 3½d. cash; closing with buyers at 42s. 3d. cash, sellers ask ½d. more. Cleveland done at 34s. 9d. and 34s. 8½d. cash; closing with buyers at 34s. 8d. cash, sellers ask 34s. 9d. Cumberland hematite closes with buyers 44s. 6d. cash, sellers ask 44s. 7d. Middlesbrough hematite closes with buyers at 43s. 3d. cash, sellers ask 43. 6d.

LIVERPOOL OIL AND COLOUR MARKET.

WEDNESDAY.

OILS.—Palm oil continues very quiet, and there is little sign of activity among either buyers or sellers. Olive is unaltered in price, and a small business has been doing. The firmness of Linseed is not maintained quite so well, but Liverpool makes in export casks are still quoted 22s. 3d. to 22s. 6d. per cwt. Cottonseed, though slightly easier in price, is on the whole firm, to-day's quotations being 22s. 6d. to 23s. 9d. per cwt. for Liverpool refined. Castor oil is not much enquired for, but sales of good seconds Calcutta, on spot, are recorded at 23½d. First pressure and French is steadily held for 2¾d. to 2¾d. per lb. Tallow is firm, and some business has been done in South American, but sales are few owing to the restricted supply. Resin, common, is in fairly good demand at 3s. 7½d. to 3s. 9d. per cwt. Spirits of turpentine have advanced considerably, prices having jumped up 1s. 3d. during the week, now being firm at 23s. per cwt. Petroleum is rather unsettled, there being a tendency to weaken in Russian refined, but American rules steady.

COLOURS are steady without alteration in prices. Ochres: Oxfordshire, common, £10., medium, £12., best, £15.; Derbyshire, common, 40s.; medium, 50s., best, 60s.; Welsh, best, 70s., seconds, 50s., and common, 18s.; Irish, Devonshire, 40s. to 45s.; French, J.C., 55s. to 60s.; M.C., 65s. to 67s. 6d. Umber: Turkish quiet; Devonshire, 50s. to 55s. White lead, red lead, and oxide of zinc unchanged. Venetian red, £6. 10s. to £10. Cobalt: Prepared oxide, 9s. 9d.; black, 9s.; blue, 6s. Zaffres: No. 1, 3s. 6d.; No. 2, 2s. 6d. Oxide of iron: Common, £6.; medium, £10.; finest, £20. Zinc oxide, £23. to £25.

HULL PAINT, OIL, AND COLOUR REPORT.

TUESDAY.

OILS.—It affords an amount of satisfaction to all concerned to see signs of a revival in trade, and were it not for the depressing influence of the coal strike, which appears to be concentrating its powers around the Yorkshire coalfields; there are many signs of a revival which lose themselves in drawing conclusions from tonnage, etc. Still there are no items in the oil trade warranting any statement of increased activity, there are many influences at the moment working against the trade; first and foremost being the strike, and secondly, the tail end of the season when the stocks are low and prices unavoidably high, especially so in regard to cotton oil, which, no doubt, more than any other, causes cessation of exports. The exports of oil during the week shows a serious decrease upon the week, being: linseed oil 1,330 cwt., against 2,099 cwt. during the same time a year ago. There was an increase in the import of tallow, also a large import of turpentine, the total being 8,672 cwt. There is also a shipment of petroleum due any time from Philadelphia of 1,050,000 gallons. Linseed oil on the spot is steady but inactive, 20s. 3d. per cwt., naked, month, 20s. 6d., buyers. November-December, 19s. 6d.; and January-April, 19s. 3d.; casks, 17s. 6d.; and ordinary barrels, 22s. 6d. per ton, extra. Cotton

oil, refined on the spot, closes quiet at 20s. 10½d.; naked, month offers at 20s. 7½d. Forward quotations are higher in sympathy with seed. November, 19s. 3d.; and December-April, 18s. 7½d. Coast cod oil difficult to buy, £17. to £20. Refined rape oil, inactive, 24s. 6d. per cwt. casks free. Sod oil, very scarce, £15. to £17. per ton. Pine oil, £7. per ton. Anti-friction grease from £6. Engine oil, 1s. 3d. to 1s. 9d. per gallon. Cylinder from 1s. to 2s. per gallon.

CAKES.—Linseed cakes firm but quiet: 95% £8 15s.; ordinary, £7 5s. to £7 10s. per ton; Russians, £8 5s. Cotton cakes: spot seed is about exhausted, and as hungry, empty mills are waiting for the comparatively light supplies on passage, spot and near prices look like holding up. Best makes, £5 15s. to £5 17s. 6d., spot; and £4 17s. 6d., December and April. Rape cakes for manure purposes £4 7s. 6d. per ton. Oil feed cakes, £5 12s. 6d.

PAINTS.—The report of painters colours show a considerable decrease the total being 340 packages against 1,132 packages a year ago. Chemicals were more largely exported, the shipments being 1,572 packages, against 883 packages a year ago. The home trade for paints, etc., continues fairly good and prices are unchanged. Oxide of zinc, £23 10s. per ton. Oxide of iron, dry, £9. to £18. per ton. White and red lead unchanged. Venetian red, dry, £6 to £10. per ton. Ready mixed paints, 1, 2, 4, 7 and 14 lb. tins, from 28s. per cwt. Oak varnish from 6s per gallon. Common black varnish, £5 10s. per ton in barrels.

TYNE CHEMICAL REPORT.

TUESDAY.

Chemicals are steady, with large shipments. Soda crystals are quoted at £2 10s.; caustic soda, 76/77%, £11 10s. per ton; bleach quiet, at £7 15s. per ton to £8. per ton; sulphur scarce and firm at £4 5s. per ton.

Bleaching powder, softs, £8. per ton, nett; hards, £8 5s. per ton; caustic soda, 76/77%, £11 15s. per ton, 70%, £10 5s. per ton; recovered sulphur, 2 cwt. bags, £4 5s. per ton; soda ash, 48%, £4. per ton, 52%, £4 7s. 6d. per ton, 56%, £4 15s. per ton; alkali, 36%, £3 15s. per ton; white alkali, 48%, £4 15s. per ton, 50%, £5. per ton, 52%, £5 5s. per ton; hyposulphite of soda, in 5-7 cwt. casks, £7. per ton, ditto, in 1 cwt. kegs, £7 15s. per ton; silicate of soda, 75° Tw., £2 15s. per ton, 100° Tw., £3 10s. per ton, 140° Tw., £3 17s. 6d. per ton; soda crystals, in casks, £2 10s. per ton gross weight, in 2 cwt. bags, £2 10s. per ton nett weight; chlorate of potash, 8½d. per lb. less 6%; pearl hardening, £3. per ton nett; pure white sulphate of alumina, £4 2s. 6d. per ton; blanc fixe, £7 10s. per ton; chloride of barium, £7 10s. per ton; carbonate of alumina, £28 15s. per ton nett; aluminate of soda, £33 15s. per ton nett; in 5 ton lots, £28 10s.; hydrate of barium, £10. per ton nett.

South Durham salt: Price unchanged at 9s. 6d. per ton f.o.b. Tees.

Coals: Trade is very firm with a strong demand, the threatened strike in Durham has been averted, the miners agreeing to accept the masters' offer of an advance of 5% for three months, to commence immediately. Best Northumbrian steam, 14s. per ton; second qualities, 12s. 6d. and 13s.; small steam, 6s. per ton; gas coal, early delivery, 12s. per ton; coke steady, at 15s. 6d.

WEST OF SCOTLAND CHEMICALS.

GLASGOW, TUESDAY.

Sulphate of ammonia has not been quite so stiff as a week ago there seemed reason to hope, but on the other hand neither is it so very easy to-day as some operators would like to assert. For instance, there is not a doubt as to prompt business having been really done at £12 13s. 9d. It is, however, very doubtful if sellers are to be had readily at that now, and the mean value is not overstated at £12 13s. 9d. to £12 15s. The assertion that last week one lot was got by a buyer at £12 10s. is discredited by nearly everybody. Forward business idle.

General chemicals all lean still farther to the quiet side, and bleaching powder is offered on easier terms. The uncertain incidence of the mining war is still a factor of confusion in quotations on the market.

In the paraffin section there is a further strengthening on the parts of scale and wax, and prices, though allowed to stand as before in the quotations below, may be taken as fractionally higher. Most other mineral oil products continue in brisk demand.

Chief prices current are:—Soda crystals £2 10s. to £2 12s. 6d. nett, Tyne; soda ash £3 17s. 6d. nett, Tyne; white alkali 48/52° £4 15s. to £5 5s. nett, Tyne; alum in lump £5. nett. Glasgow: caustic soda, white, 74°, £12. os., 70/72° £11. os., 60/62° £10. os., and cream 60/62° £9 15s., all nett, Liverpool; bleaching powder £8. nett Tyne; saltcake, 22s. 6d.; borax, English refined, £30., and boracic acid, £37 10s. nett, Glasgow; bicarbonate of soda, 5-cwt. casks, £6 15s., and 1

cwt. casks £7. less 2½%, Liverpool; bichromate of potash, 4½d. nett, for Scotch and English deliveries (for export, 4½d. nett f.o.b. Glasgow); bichromate of soda, 3¾d. nett, for Scotch and English deliveries (for export, 3½d. nett, f.o.b. Glasgow); chlorate of potash, 8½d. less 5%, Liverpool; nitrate of soda, 9s. 3d.; sulphate of ammonia, £12 13s. 9d. to £12 15s. prompt, f.o.b. Leith; sal ammoniac, first and second white, £37. and £35. less 2½% any port; sulphate of copper, £15 15s. less 5% Liverpool; paraffin scale, hard and soft, 1½d. per lb.; paraffin wax 120° semi-refined 2¾d.; paraffin spirit (naphtha) 4½d. a gallon; paraffin oil, burning, standard No. 1 grade, 5d. per gallon at works, for Scotch buyers (English sales ¾d. to ¾d. lower); ditto (lubricating) 86° £4 7s. 6d., 88° £4. to £5 10s., and 890/895° £4 12s. 6d. to £6. Week's imports of raw sugar at Greenock were 7,300 bags.

THE COPPER MARKET.

Messrs. Harrington and Co., in their fortnightly report, dated Liverpool, October 17th, 1893, state:—

The Chili Charters for the past fortnight have been cabled as 1,200 tons, making the total since 31st December last 16,550 tons, against 17,151 tons same time last year. Exchange, 14¾d.

During the past fortnight the market for G.O.B.'s and G.M.B.'s has been dull and irregular, and the transactions not over 4,700 tons. Highest prices were paid on the 5th inst., viz., £42 1s. 3d. cash and £42 8s. 9d. three months, lowest £41 10s. and £41 17s. 6d. three months respectively, at which we close to-day with a dull market.

The total stocks in Liverpool, Swansea, London, and Havre are 43,245 tons, against 43,704 tons on the 31st ult., showing a decrease of 459 tons for the fortnight. The stocks include about 2,500 tons of copper sold, but not yet delivered to smelters. The visible supply for the fortnight is 47,796 tons, against 47,857 tons on the 31st ult., showing a decrease of 61 tons. The stock of English G.M.B.'s in Liverpool remains at 7 tons.

Refined and manufactured sorts are quiet, quotations being:—Tough cake, £44 5s. to £44 15s.; best select, £45 5s. to £45 15s.; Indian sheets, £50 10s.; strong sheets, £53. to £53 10s.; and yellow metal sheets, 4½d. per lb.

The sales of furnace material comprise:—At Liverpool: 190 tons Mexican ore, at 8s. 1½d.; 1,000 tons Spanish ore, at 7s. 9d.; 690 tons Chili ore, at 7s. 10½d.; 124 tons at 8s. 1½d., and 13 tons at 8s. 6d.; 50 tons Spanish precipitate, at 8s. 6d.; and 50 tons English precipitate, at 8s. 9d. per unit. At Swansea: Nil.

Reports of Companies.

SANTA ELENA NITRATE CO., LIMITED.

The report of this company to June 30 states that the accounts show a net profit on the year's working of £10,750., out of which a dividend of 2s. 6d. per share was paid in May last. After payment of this dividend and including £2,682. brought forward, there remains a sum of £10,761. The directors propose a dividend of 5s. per share (making 7½ per cent. for the year), and the transfer to depreciation fund of £2,500, carrying forward £2,904. The works and plant have, it is stated, been maintained in good repair, and the directors have been able to considerably reduce the liabilities and strengthen the position during the past year. The necessity of holding considerable stocks prevents the distribution of the whole of the profits earned, but with the amount now at credit of the reserve fund this difficulty should not, it is said, occur in the future.

A. AND F. PEARS, LIMITED.

The directors of A. and F. Pears, Limited, recommend for the past half-year dividends at the rate of 6 per cent. on the preferred, 12 per cent. on the ordinary, and 10 per cent. on the deferred.

SAN PABLO NITRATE CO., LIMITED.

The annual meeting of this company was held on Tuesday last week at Winchester-house, London, Mr. Robert Harvey presiding. In moving the adoption of the report, the chairman stated that they had in hand at the present time a stock of about 1,000,000 ounces of iodine, which they had taken into the balance-sheet at cost price—a very low one—the selling value being about £30,000. Their nett profit for the past year, including the balance of £2,138. brought forward, was £23,542. They had already paid an interim dividend of 7½ per cent., and they now recommended a further distribution of 5 per cent. The nitrate combination, which had succeeded beyond their most sanguine expectations, would come to a termination at the end of March, 1894, and then each company would be allowed to produce as much as it could. The exchange at which their balance-

sheet had been made out this year was at 15d. against 17d. last year. Mr. J. J. Smith seconded the motion, which was adopted.

THE GENERAL PHOSPHATE CORPORATION LIMITED.

The first meeting of the creditors of this Company was held recently in London before Mr. G. S. Barnes, Official Receiver, the business being to appoint a liquidator and committee of inspection to act under the winding-up order (*Chemical Trade Journal*, 334, p. 241.) In commenting upon the present position of the company, the chairman, dealing first with the original purchase of the properties, observed that, with a paid-up capital of £39,000., the directors entered into bargains entailing an expenditure of £96,000., and left themselves without a single farthing for working capital, besides being very heavily in debt. There was very little doubt but that the prices of the properties were very much larger than ought to have been the case having regard to the fact that phosphates had fallen to a very considerable extent. No valuation of the properties had been made, and the only two experts who were instructed to report as to value were gentlemen who had previously been employed by the vendors. Under these circumstances it was not too much to say that the experts' reports were not perhaps quite so independent as they ought to have been. In December, 1890, there was an attempt to issue further capital, with the result that £360. worth of shares was taken by the public. Then came the issue of debentures, which, in his opinion, seemed the most extraordinary piece of finance he had ever seen. There was a mortgage on the High Falls group of £30,000., subsequently reduced to £20,000., running to October 31, 1895. Upon the "Ross Mountain" group there was a mortgage of £27,500., also running to October, 1895. Although there was no necessity whatever to pay off those mortgages, which could have been running at the present time at the same rate of interest as that charged on the debentures, the fact remained that £100,000. was raised, and a sum of £15,000. was paid to the Anglo-American Debenture Corporation (Limited) as commission. In respect of those debentures the company only received in ready cash a sum of £5,410., but it was fair to add that they had derived other advantages, such as the payment of current interest, &c. A peculiar fact in connexion with the debentures was that a further sum of £596 was paid out for law charges. Immediately following the issue of the debentures came a further borrowing of £20,000., although there were alternative courses by which money could have been raised on the uncalled capital, &c. They came next to the phase of the company that might be termed the "North Star." When the company was in great straits for money, and before they made their debenture issue, at a time that they were clogged up with their own properties and unable to develop them, they went and entered into an entirely new scheme which was commonly called the North Star scheme. That was an arrangement by which the company agreed to combine with another company and purchase properties, with a view to reselling them to a company to be formed in the future. The result of that arrangement was the expenditure of nearly £8,000 by the company, of which sum it was not likely that anything whatever would be recovered.

A few questions having been put and answered, resolutions were passed for the Official Receiver to act as liquidator and wind up the company, with the assistance of a committee of inspection. Mr. F. J. Leslie, solicitor (J. and H. Gregory, Leslie, and Hartley), Liverpool, was appointed a member of the committee to represent the interests of the creditors thereon.

New Companies.

George Adams and Sons, Limited.—CAPITAL £100,000. in shares of £10. each. This company has been formed to take over the business of galvanisers of iron and steel now carried on by George Adams and Sons, Staffordshire. The subscribers to the memorandum of association are:—G. N. Adams, Summerfield, Wolverhampton, iron manufacturer; T. B. Adams, Tynedale, Wolverhampton, iron manufacturer; A. Adams, Lindenhurst, Wolverhampton, widow; F. C. Adams, Wolverhampton, married woman; H. Adams, Wolverhampton, married woman; H. L. Atkinson, Mirridale-road, Wolverhampton, chartered accountant; T. Addenbrooke, Parkdale, Wolverhampton, chartered accountant.

F. Hallam and Son, Limited.—CAPITAL, £4,000. in shares of £10. each. This company has been formed to carry on the business of manufacturers and dealers in chemicals and chemical products. The subscribers to the memorandum of association are:—C. T. Anderson, 235, Branston-road, Burton-on-Trent, brewer; M. E. Anderson, 235, Branston-road, Burton-on-Trent, married woman; W. Clements, St. Paul's-square, Burton-on-Trent, surgeon; J. Lee, Burton, farmer; Alice Holland, Burton, widow; H. T. Ford, 66, Branston-road, Burton, accountant; S. R. Hallam, 47, Lambeth Palace-road, London, medical student.

Patent Borax Company, Limited.—CAPITAL £50,000 of £10 each. This company has been formed to acquire Mr. J. Ascough, and to prepare and deal in borax, boron, boracic compounds, also to purchase borax deposits and mine the same. The subscribers to the memorandum of association are:—J. Ascough, The Grange, Handsworth, Staffordshire, patent; Parker, Clive House, Summer Hill-road, Birmingham, traveller; M. A. Ascough, Handsworth, married woman; Ascough, Handsworth, spinster; R. Hayden, Birmingham woman; F. Hetherington, Birmingham, married woman; Ascough, Handsworth, spinster.

Samuel Meggitt and Sons, Limited.—CAPITAL shares of £10. each. This company has been formed to business carried on by Messrs. Meggitt, at Sheffield and to manufacture chemical manures, glue, oil cakes, stuffs, and to carry on the business of bone crushers and of all kinds of chemicals for agricultural purposes. The subscribers to the memorandum of association are:—S. Meggitt, 8, Tap Sheffield, merchant; J. B. Meggitt, St. John's-street, Manchester; H. A. Meggitt, Chesterfield-road, Mansfield, merchant; C. Meggitt, Mexbro', merchant; W. M. Meggitt, At Mansfield, merchant; G. T. Meggitt, The Park, merchant.

Sydney Smith and Sons, Limited.—CAPITAL £50,000 of £10. each. This company has been formed to business carried on by Messrs. Smith, chemists, etc. and colour men, etc.

W. Gall, Limited.—CAPITAL £10,000. in shares of £10. each. This company has been formed to purchase the business of W. Gall, Cambridge, by J. West, carried on at Great Shelford, Cambridge, and to trade as manufacturers of W. Bird and W. D. Gall, and kinds. The subscribers to the memorandum of association are:—J. West, Manor House, Cambridge, analyst; F. W. Bird, 1, Shelford, Cambridge, manufacturer; W. Dennison, Galloway Villa, Cambridge, turer; T. B. Barker, 1, Warkworth-road, Cambridge turer; A. C. Mansfield, 8, Mortimer-street, H. F. B. Chater, Mawson-road, Cambridge, registrar; W. D. Gall, Cambridge, manufacturer.

The Patent List.

This list is compiled from Official sources in the Technical Laboratory, under the immediate supervision of George E. Davis and Alfred R. Davis, who report upon the value of Chemical Patents.

APPLICATIONS FOR ENGLISH LETTERS.

- Separating Grease from Boiler Feed Water, etc. 18,879. October 9.
 Colouring Matters. O. Imray. 18,908. October 9.
 Air Compressors. P. Brotherhood. 18,909. October 9.
 New Azo Dyes. J. Y. Johnson. 18,924. October 9.
 Colouring Matters. J. Y. Johnson. 18,925. October 9.
 Purifying Seed Oils. W. C. Brumley. 18,938. October 9.
 Colouring Leather. J. T. Hardy. 18,949. October 10.
 Dyestuffs. A. Bang. 18,958. October 10.
 Fuel Economising and Smoke Consuming Apparatus. 19,058. October 11.
 Sewage Subsidence Tanks. H. Lockwood. 19,069. October 11.
 Supplying Liquid Fuel to Furnaces. J. C. Etchells. 19,110.
 Improved Varnish. R. G. Bennett. 19,115. October 11.
 Improved Adaptations of Silicate Cotton. R. Stewart and F. 19,123. October 11.
 Apparatus for the Electrolytical Decomposition of Brine, etc. and M. Guthrie. 19,145. October 11.
 A New Substitute for India-rubber. L. le Brocq. 19,163.
 Purifying Water by Oxide of Tin. H. von der Linde and C. 19,172. October 12.
 Smoke Consuming Grate. G. Williams. 19,234. October 13.
 Apparatus for Treating Ores and Precious Metals with Chlorine. R. Brown. 19,235. October 13.
 Improved Cement Kilns. Ernest de Pass. 19,259. October 13.
 Purification of Oils, Nitro-Glycerine, etc. T. C. Palmer. 19,271.
 Improvements in Soap Making. M. J. Palmer. 19,298. October 14.
 Oil Fuel Burners. J. C. Graham. 19,327. October 14.
 Portable Hydrocarbon Burners for Lighting or Heating. Denny and R. H. Gourlay. 19,332. October 14.
 Apparatus for Purifying Sewage, etc. P. Dvorkovitz. 19,341.

Gazette Notices.

PARTNERSHIPS DISSOLVED.

- P. Wood and S. Wood. West Bromwich, brick and tile manufacturer style of P. and S. Wood.
 F. L. FOTHERGILL and S. CAPPEL, Ossett, wool extractors and facturers, under the style of Fothergill and Cappel.

IMPORTS OF CHEMICAL PRODUCTS

AT

THE PRINCIPAL PORTS OF THE UNITED KINGDOM.

LONDON.

Week ending October 14th.

Acetate of Lime—
Germany, 4 pkgs. L. & I. D. Jt. Co.
U. States, 1,017 Johnson & Hooper

Acetic Acid—
Holland, 100 pkgs. Beresford & Co.
Belgium, 2 Leach & Co.

Alumina Sulphate—
Germany, £225 Tough & Co.

Aluminium—
Belgium, £280 Major & Field

Ammonia (Liquid)—
Holland, £75 H. Lorenz

Antimony—
France, 6 c. H. Johnson & Sons
Germany, 200 t. B. & N. Wvs. Co., Ltd.

Asbestos—
Holland, £10 G. Rahn & Co.
U. States, 417 Furness, Withy, & Co.
Belgium, 8 T. Palmer

Barytes—
Germany, 24 cks. O'Hara & Hoar
Holland, 3 J. Owen
Germany, 19 P. Jantzen

Caoutchouc—
E. Indies, 79 c. L. & I. D. Jt. Co.
Germany, 11 Wallace Bros.
Singapore, 32 Prop. Bull. Wf.
Germany, 41 Anderson, Weber, & Smith
Germany, 30 Prop. Hay's Wf.
" 62 Procter Bros.
" 72 L. & I. D. Jt. Co.
Zanzibar, 46
Ibo, 14
Madagascar, 33 Lewis & Peat
France, 40 Clarke & Smith
" 45 Procter Bros.
" 18 Prop. Bull. Wf.
" 18 Patry & Pasteur, Ltd.
" 45 Blythe, Green, & Co.
" 35 L. & I. D. Jt. Co.
" 150 Brookes & Green
Inhambane, 3 J. Owen
Germany, 75 Philipps & Graves
" 4 Clarke & Smith
Belize, 1 L. & I. D. Jt. Co.
France, 17 H. Johnson & Sons
U. States, 18 W. Symington & Co.

Castor Oil—
Italy, 5 cs. J. Knill & Co.

Chemicals (otherwise unadvised)—
Holland, £14 T. H. Lee

Germany, 67 L. & I. D. Jt. Co.
" 18 Hernu, Peron, & Co.
" 30 C. F. Gerhardt
" 20 A. J. Luke & Co.
Holland, 50 Beresford & Co.
" 30 A. & M. Zimmermann
Germany, 463 Pickford & Co.
Belgium, 30 T. Palmer

Chloride of Lime—
France, £66 Mead, Son, & Co.

Chrome Ore—
Australia, 3 t. L. & I. D. Jt. Co.

Cream of Tartar—
Holland, 60 pkgs. Middleton & Co.
Spain, 3 W. C. Bacon & Co.
France, 9
" 2 E. W. Carling & Co.

Dextrine—
Germany, 20 pkgs. Andersen, Becker, & Co.
" 75 H. Lorenz

Dyestuffs—
Aniline—
Holland, 2 pkgs. J. Owen

Anthracene—
Holland, 131 cks. Burt, Boulton, & Co.

Argols—
Italy, 201 pkgs. Thames S. T. & L. Co., Ltd.

Cochineal—
Teneriffe, 7 pkgs. G. S. Brine
Canaries, 32 bgs. Swanston & Co.
" 9 Sperling & Williams

Cutch—
Rangoon, 500 pkgs. Anderson, Weber, & Smith
U. States, 490 Ralli Bros.
Rangoon, 100 Philipps & Co.
Singapore, 300 bxs. R. G. Hall & Co.

Divi Divi—
E. Indies, 100 pkgs. Culverwell, Brooks, & Co.

Extracts—
Belgium, 100 pkgs. T. H. Lee
Austria, 50 brls. M. D. Co.

Gambier—
Singapore, 43 pkgs. T. J. & T. Powell
" 221 bls. J. Swire & Sons
" 341 Brown & Elmslie
" 182 Beresford & Co.
" 98 S. Barrow & Bro., Ltd.
" 168 R. & J. Henderson

Indigo—
E. Indies, 41 chts. Wallace Bros.
" 6 Arbuthnot, Latham, & Co.
" 8 L. & I. D. Jt. Co.
Madras, 45 Arbuthnot, Latham, & Co.
E. Indies, 29 Stansbury & Co.
U. States, 19 Ripley, Roberts, & Co.

Logwood—
Belize, 117 t. A. Hagan

Myrabolams—
Bimlapatam, 590 pkgs. H. A. Litchfield & Co.
" 628 bgs. Hoare, Wilson, & Co.
E. Indies, 413 L. & I. D. Jt. Co.

Orchella—
E. Indies, 8 bls. 4 pkgs. L. & I. D. Jt. Co.

Saffron—
Spain, 1 cs. C. Brunlen & Sons

Tanner's Bark—
Melbourne, 20 t. Boutcher, Mortimore, & Co.
Adelaide, 604 C. C. Bryden & Co.
Belgium, 50 Leach & Co.
Adelaide, 114 Beresford & Co.
Natal, 5 Devitt & Hett
" 80 Boutcher, Mortimore, & Co.

Turmeric—
Holland, 8 cks. Ross & Deering

Valonia—
A. Turkey, 20 A. & W. Nesbitt
" 25 M. D. Co.

Farina—
Holland, 50 pkgs. J. Knill & Co.
Singapore, 100 G. Hornze
Germany, 100 Prop. Scott's Wf.

Glucose—
U. States, 500 pkgs. 500 c. Deal & Barnsley
" 2,000 2,000 c. Beresford & Co.
" 5 36 Vokins & Co., Ltd.
" 800 800 R. G. Hall & Co.
" 1,000 1,000 Humphrey & Co.
" 125 500 L. Norman & Co.
" 200 1,210 Linton, Hubbard, & Co.

Guano—
Lososdo Tierre, 800 t. Anglo Contl. G. Wks.

Lead Acetate—
Germany, 150 pkgs. F. Boehm

Litharge—
Germany, 2 cks. H. Lambert

Magnesia—
Holland, £180 Beresford & Co.

Magnesium—
Germany, £270 Philipps & Graves

Manganese—
Japan, 280 t. J. Swire & Sons
N. Zealand, 85 James & Shakespeare

Manure—
Germany, 51 t. Perkins & Homer
" 200 Odams Chemical Manure Co.

Naphtha—
Holland, 57 dms. Little & Johnson
" 57 Burt, Boulton, & Co.

Ochre—
Holland, 12 pkgs. Philipps & Graves
Germany, 5 " T. H. Lee

Paint—
Germany, £120 T. H. Lee

Paraffin Wax—
Germany, 7 cs. T. H. Lee
U. States, 750 J. H. Usmar & Co.

Phosphate Rock—
France, 129 t. A. Hunter & Co.
Belgium, 160 Odams Chemical Manure Co.

Pitch—
Russia, 300 brls. W. F. Malcolm & Co.

Plumbago—
Ceylon, 204 cks. Prop. Sun Wf.
Holland, 21 505 J. Thredder, Son, & Co.
Germany, 22 brls. B. Gallaway
Rangoon, 95 Prop. Hay's Wf.
Ceylon, 28 L. & I. D. Jt. Co.
" 70 Lambert & Strong Doulton & Co.

Potash—
Canada, 170 c. J. Barber & Co.

Potassium Carbonate—
France, 100 c. J. A. Reid

Potassium Chloride—
Germany, £85 F. W. Berk & Co., Ltd.

Potassium Oxide—
Belgium, 190 brls. G. Boor & Co.

Potassium Permanganate—
Germany, 75 pkgs. H. Lorenz

Potassium Silicate—
Germany, 30 pkgs. Spies Bros.

Potassium Sulphate—
Belgium, 10 brls. T. Palmer

Pumice Stone—
Italy, 1 t. E. Fellingham

Pyrites—
Thronthheim, 50 t. F. W. Berk & Co.
Spain, 1,800 C. Tennant, Sons, & Co.

Quicksilver—
Spain, 100 btl. L. & I. D. Jt. Co.

Rosin—
U. States, 2,000 brls. Prod. Brokers Co.
" 1,931 H. Hill & Sons
" 504 F. & S. Chiesman & Co.

Rosin Oil—
France, 299 brls. C. Price & Co.
" 60 Barrett, Tagant, & Co.

Saltpetre—
E. Indies, 1,014 bgs. Ralli Bros.
Germany, 70 cks. T. Merry & Son
" 28 Brown & Elmslie

Soda—
Germany, 101 c. H. Lambert

Sodium Hyposulphite—
Germany, £70 F. Boehm

Starch—
Germany, 1 pkge. Philipps & Graves
Singapore, 192 J. Barber & Co.
" 20 Barrett, Tagant, & Co.
" 180 G. S. N. Co.
Belgium, 120 40 cs. Barrett, Tagant, & Co.
Germany, 420 Horne & Co.
Belgium, 430 Prop. Scott's Wf.
Holland, 90 Leach & Co.
" 926 C. J. Capes & Co.
" 40 J. Barber & Co.

Stearine—
France, 72 bgs. J. Goddard & Co.
" 80 Walbaum & Tosetti
" 100 H. Hill & Sons
Belgium, 75 14 cks. L. & I. Dk. Co.

Sulphur—
Italy, 120 t. Johnson & Hooper

Tar Oil—
Russia, 21 cks. Mordaunt Bros.
" 34 brls. F. & A. Delcomyn

Surpentine—
U. States, 746 brls. Fairclough & Co.

Ultramarine—
Holland, 11 cs. Haefner, Hilpert, & Co.
Belgium, 2 brls. W. Harrison & Co.

Yarnish—
U. States, 22 pkgs. Beck & Pollitzer
Belgium, 3 J. & T. Seddon
Holland, 4 Philipps & Graves
France, 15 Flageolet & Co.

White Lead—
Germany, 20 cks. H. Lambert
Belgium, 24 Leach & Co.
Holland, 50 43 pkgs. T. & W. Farmiloe
Germany, 20 F. Broome
Holland, 44 A. & M. Zimmermann
Germany, 25 Burrell & Co.
" 35 M. Ashby, Ltd.

Zinc Oxide—
Holland, 105 brls. M. Ashby, Ltd.
U. States, 100 "

LIVERPOOL.

Week ending October 12th.

Acetate of Lime—
New York, 1,228 bgs.

Acetic Acid—
Hamburg, 2 brls.
Antwerp, 5 pkgs. J. T. Fletchier & Co.

Acid—
Havre, 1 brl. Cunard S. S. Co., Ltd.

Ammonium Carbonate—
Hamburg, 19 cks.

Ammonium Chloride—
Hamburg, 1 ck.

Asbestos—
Montreal, 49 bgs. Allan Bros. & Co.

Barytes—
Antwerp, 11 cks.

Bone Meal—
Kurrachee, 1,500 bgs.

Boric Acid—
Hamburg, 20 pkgs.

Caoutchouc—
Hamburg, 12 cks.

Castor Oil—
Calcutta, 250 cs. D. Sassoon & Co.

Caustic Alkali—
In transit, 211 cks.

Chloroform—
In transit, 1 cs. Cunard S. S. Co., Ltd.

Colours—
Rotterdam, 32 cs. 5 bxs. 39 cks.
In transit, 75
Antwerp, 12 1 crt. J. T. Fletcher & Co.

Dyestuffs—
Extracts—
New York, 225 bxs.
Baltimore, 11 brls. Houston & Laurisch
Bordeaux, 205 cks.
Fustic—
Vera Cruz, 5,268 bgs.
Orchella—
San Francisco, 824 bls.
Saffron—
Valencia, 2 cs.
Valonia—
Smyrna, 321 bgs.

Dyestuffs (otherwise undescribed)—
New York, 10 brls. 250 bxs.

Glucose—
New York, 674 brls.

Limestone—
Antwerp, 2 cs. 1 crt. J. T. Fletcher & Co.

Mica—
New York, 10 brls. T. Robinson & Son

Paint—
Boston, 51 cs. Bahr, Behrend & Ross
" 15 Frazer & Co.
" 2 G. Norris
" 30
Syra, 40 kgs. S. Ashcroft & Co.
Constantinople, 1 in

Paraffin Scale—		
New York,	210 brls.	Standard Oil Co.
Philadelphia,	1,015	
Pitch—		
Hamburg,	58 cks.	
Potash—		
Hamburg,	36 cks.	
Pyrites—		
Huelva,	1,459 L.	Tennants & Co.
"	1,192	Matheson & Co.
Rosin—		
Savannah,	5,423 brls.	
New York,	100	
Saltpetre—		
Calcutta,	1,403 bgs.	Ralli Bros.
Hamburg,	85 kgs.	30 brls. 5 cks.
Soap—		
N. Orleans,	2,785 brls.	
Rotterdam,	2 cs.	
Soda—		
Hamburg,	25 cks.	
Sodium Nitrate—		
Iquique,	8,816 bgs.	W. & J. Lockett
Starch—		
Hamburg,	354 cs.	
Ghent,	160	J. T. Fletcher & Co.
Rotterdam,	360	
Antwerp,	415	J. T. Fletcher & Co.
"	40	
Stearine—		
Antwerp,	20 bgs.	
Sulphur Ore—		
Huelva,	1,663 t.	
Tallow—		
San Francisco,	150 brls.	
New York,	128 tcs.	
Zarate,	333 cks.	J. Nelson & Sons, Ltd.
Tartar—		
Bordeaux,	11 cks.	
Tartar Salts—		
Rotterdam,	2 cks.	
Tartaric Acid—		
Rotterdam,	2 cks.	
Turpentine—		
Savannah,	750 cks.	
Ultramarine—		
Hamburg,	1 ck.	
Rotterdam,	1	13 cs.
Verdigris—		
Bordeaux,	1 ck.	
Waste Salt—		
Hamburg,	621 t.	
Zinc Oxide—		
Rotterdam,	135 cks.	
Antwerp,	7 brls.	
Zinc White—		
Antwerp,	25 brls.	

HULL.

Week ending October 14th.

Acetate—		
New York,	493 bgs.	Wilson, Sons, Co., Ltd.
Alumina—		
Rotterdam,	35 cks.	W. & C. L. Ringrose
Antimony—		
Hamburg,	5 cs.	
"	1	Wilson, Sons, & Co., Ltd.
Barytes—		
Bremen,	46 cks.	Tudor & Sons
"	35	G. Holmes & Co.
"	44	Blundell, Spence, & Co.
Antwerp,	22	Bailey & Leetham
Binetro Toluol—		
Rotterdam,	4 cks.	G. Lawson & Sons
Camphor—		
Hamburg,	1 cs.	Wilson, Sons, & Co., Ltd.
Carbonate of Lime—		
Rotterdam,	1 ck.	Hutchinson & Son
Chemicals (otherwise undescribed)		
Stettin, 10 pkgs.	13 cks.	Wilson, Sons, & Co., Ltd.
Bremen, 2 cs.		Veltmann & Co.

Hamburg,	3	Wilson, Sons, & Co., Ltd.
Dunkirk,	75 pks.	
Antwerp,	52	"
China Clay—		
Hamburg,	29 bgs.	Wilson, Sons, & Co., Ltd.
Colours—		
Hamburg,	11 pks.	W. A. Massey & Co.
Rotterdam, 10cs. 10	17 cks.	G. Lawson & Sons
Flushing,	44	
Amsterdam,	2 cks.	W. & C. L. Ringrose
Rotterdam,	11	26 cs. Hutchinson & Son
Bremen,	4	Blundell, Spence, & Co.
Rotterdam, 116 cs. 1	46 pks.	20 bgs. W. & C. L. Ringrose
Flushing,	12	48 1 cs. Hutchinson & Son
Antwerp, 46 pks. 4		Wilson, Sons, & Co., Ltd.
"	45	C. M. Lofthouse & Co.
Copper Oxide—		
Rotterdam,	2 cs.	Hutchinson & Son
Cottonseed Oil—		
Rotterdam,	21 brl.	Hutchinson & Son
Cryolite—		
Copenhagen,	14 cks.	Wilson, Sons, & Co., Ltd.
Dextrine—		
Stettin,	50 bgs.	Wilson, Sons, & Co., Ltd.
"	50	
Dyestuffs—		
Alizarine	6 cks.	77 pks. G. Lawson & Sons
Flushing,		W. & C. L. Ringrose
Rotterdam,	56 pks.	
Extract		
New York,	100 brls.	Wilson, Sons, & Co., Ltd.
Farina—		
Hamburg,	100 bgs.	Wilson, Sons, & Co., Ltd.
Harlingen,	150	
Stettin,	250	Wilson, Sons, & Co., Ltd.
"	90	
Ghent,	332 cs.	Wilson, Sons, & Co., Ltd.
Glucose—		
New York,	36 brls.	Wilson, Sons, & Co., Ltd.
"	50	
Stettin,	22 cks.	Wilson, Sons, & Co., Ltd.
Mica—		
Christiania,	2 bxs.	Wilson, Sons, & Co., Ltd.
Naphtha—		
Rotterdam,	2 cks.	Hutchinson & Son
Paint—		
Boston,	30 cs.	Wilson, Sons, & Co., Ltd.
New York,	5	"
Phosphate—		
Ghent,	203 t.	500 bgs.
Pitch—		
Rotterdam,	1 dm.	W. & C. L. Ringrose
Plumbago—		
Hamburg,	1 brls.	Wilson, Sons, & Co., Ltd.
Rosin—		
Rotterdam,	16 cks.	Hutchinson & Son
Salt—		
Stettin,	1 ck.	
Saltpetre—		
Antwerp,	135 bgs.	Wilson, Sons, & Co., Ltd.
Hamburg,	100	6 cks. "
Starch—		
Bremen,	1,346 cs.	Veltman & Co.
Antwerp,	40	Wilson, Sons, & Co., Ltd.
Tallow—		
New York,	250 brls.	145 tcs. Wilson, Sons, & Co., Ltd.
Tar Colours—		
Rotterdam,	1 ck.	G. Lawson & Sons

Tartaric Acid—		
Rotterdam,	7 cks.	G. Lawson & Sons
"	2	Hutchinson & Son
Turpentine—		
Libau,	100 brls.	
Waste Salt—		
Hamburg,	102 bgs.	Furley & Co.
White Lead—		
Rotterdam,	26 cks.	Hutchinson & Son
Antwerp,	40	Bailey & Leetham
Rotterdam,	26	A Sanderson & Co.
"	27	Tudor & Sons
Zinc White—		
Rotterdam,	25 cks.	Hutchinson & Son

GLASGOW.

Week ending October 19th.

Alum—		
Hamburg,	30 cks.	
Aniline Colours—		
Hamburg,	4 cs. 9 cks.	
Arachide Oil—		
Rotterdam,	2 cks.	J. Rankine & Son
Asbestos—		
Rouen,	436 bgs.	
Barium Sulphate—		
Antwerp,	600 bgs.	
Bromine—		
Hamburg,	5 cs.	
Castor Oil—		
Antwerp,	29 cks.	
Cellulose—		
Hamburg,	102 bls.	
Colours—		
Rotterdam,	1 ck.	J. Rankine & Son
"	15	18 cs. 44 pkgs.
Hamburg,	31	2
Dyestuffs—		
Alizarine		
Rotterdam,	75 cks.	1 cs.
"	5	J. Rankine & Son
Extracts		
Antwerp,	3 cks.	
Logwood		
New York,	110 t.	
Farina—		
Delfzyl,	10 bgs.	
Stettin,	500	
Guano—		
Iceland,	1,685 sks.	J. T. Salvesen & Co.
Hydrofluoric Acid—		
Hamburg,	2 cks.	
Lead Acetate—		
Hamburg,	12 cks.	
Limestone—		
Rouen,	2 crts.	
Ochre—		
Rouen,	40 cks.	
Paint—		
Montreal,	50 brls.	12 kgs.
Amsterdam,	2 cks.	
Painters' Colours—		
Antwerp,	1 ck.	
Phosphate of Lime—		
Antwerp,	1,000 bgs.	
Potash—		
Hamburg,	79 cks.	
Pyrites—		
Huelva,	1,765 t.	Tharsis Co.
Rosin—		
New York,	1,697 brls.	
Brunswick,	2,274	
Saltpetre—		
Hamburg,	2 cks. 8 kgs.	1 brl.
Sodium Acetate—		
Rouen,	32 cks.	
Sodium Nitrate—		
Rotterdam,	1 bx.	J. Rankine & Son
Starch—		
New York,	200 sks.	
Rotterdam,	236 cs.	J. Rankine & Son
Stearine—		
Rotterdam,	16 cks.	23 bls. J. Rankine & Son

Tallow—		
New York,	87 tcs.	
Amsterdam,	10 firks.	
Tartar—		
Bordeaux,	28 cks.	
Tartar Emetic—		
Hamburg,	4 cks.	
Turpentine—		
Brunswick,	1,650 cks.	
Ultramarine—		
Hamburg,	1 ck.	
Waste Salt—		
Hamburg,	50 cks.	
White Lead—		
Rotterdam,	113 cks.	
Antwerp,	8	
Ghent,	9	
Zinc Oxide—		
New York,	100 brls.	
Zinc White—		
Rotterdam,	175 cks.	

TYNE.

Week ending October 14th.

Acids—		
Rotterdam,	85 clys.	Tyne S. S. Co.
Alum Earth—		
Hamburg,	17 cks.	Tyne S. S. Co.
Colours—		
Rotterdam, 2 cs. 2 cks.		Tyne S. S. Co.
Antwerp,	3	"
Limestone—		
Antwerp,	1 cs. 2 crts.	Tyne S. S. Co.
Pyrites—		
Huelva,	1,485 t.	105 bgs.
Saltpetre—		
Hamburg,	8 cks.	Tyne S. S. Co.
Harburg,	220 t.	
Starch—		
Rotterdam,	144 cs.	Tyne S. S. Co.
Stearine—		
Antwerp,	6 bgs.	Tyne S. S. Co.
Ultramarine—		
Hamburg,	4 cks.	Tyne S. S. Co.
Waste Salt—		
Hamburg,	150 t.	
Zinc Oxide—		
Antwerp,	10 brls.	Tyne S. S. Co.

GRIMSBY.

Week ending October 14th.

Albumen—		
Hamburg,	6 cs.	
Caoutchouc—		
Rotterdam,	3 cs.	
Chemicals (otherwise undescribed)		
Hamburg,	3 cks.	
Dyestuffs (otherwise undescribed)		
Dieppe,	5 cks.	
Farina—		
Hamburg,	75 bgs.	
Size—		
Antwerp,	13 cks.	
Zinc Ashes—		
Antwerp,	8 pkgs.	

GOOLE.

Week ending October 11th.

Caoutchouc—		
Boulogne,	3 cks.	
Dyestuffs—		
Alizarine		
Rotterdam,	96 pkgs.	
Extracts		
Rouen,	110 cks.	
Logwood		
Belize,	706 t.	
Dyestuffs (otherwise undescribed)		
Boulogne,	23 pkgs. 7 cs.	
Ghent,	2 cks.	
Farina—		
Hamburg,	150 bgs.	
Delfzyl,	970	
Potash—		
Calais,	39 dms.	
Saltpetre—		
Rotterdam,	100 bgs.	
Hamburg,	4 cks.	
Waste Salt—		
Hamburg,	1,614 cks.	242

EXPORTS OF CHEMICAL PRODUCTS OF THE PRINCIPAL PORTS OF THE UNITED KINGDOM.

LONDON.

Week ending October 18th.

Acids—		
Champion Bay, 13 cs.	£10	
Algoa Bay, 3 kgs.	25	
Alkali—		
Melbourne, 4 t. 11 c.	£59	
Sydney, 7	79	
Ammonia (Liquid)—		
Antwerp, 19 c.	£40	
Ammonium Carbonate—		
Yokohama, 4 t. 5 c.	£136	
Kobe, 12	19	
Sydney, 10 cs.	17	
Melbourne, 10	21	
Ammonium Chloride—		
Constantinople, 5 t.	£166	
Bourgas, 33		
Sydney, 7 13 c.	157	
Antwerp, 1	34	
Alexandretta, 12	19	
Ammonium Nitrate—		
Algoa Bay, 37 rts. 12 runs.	£339	
Ammonium Sulphate—		
Bordeaux, 35 t.	£485	
Ghent, 20	250	
Rouen, 5	65	
Dunkirk, 45	585	
Hamburg, 150	2,100	
Rotterdam, 40	560	
Arsenic—		
Napier, 5 t. 14 c.	£95	
Barium Nitrate—		
Hamilton, 10 c.	£10	
Benzolic Acid—		
Philadelphia, 1 cs.	£7	
Boracic Acid—		
Sydney, 1 t.	£39	
Borax—		
Hamburg, 12 c.	£31	
Melbourne, 5 t.	280	
Harlingen, 4	10 cs.	26
Natal, 1	33	
Veile, 15	39	
Carbolic Acid—		
Sydney, 8 c. 5 cks.	£33	
Bombay, 7 t. 2 c.	57	
Philadelphia, 5 cs.	36	
Rotterdam, 24 cks.	85	
Genoa, 24	53	
Carbonate of Soda & Potash—		
Montreal, 2 cks.	£12	
Carbon Bisulphide—		
Dunkirk, 31 drs.	£75	
Caustic Soda—		
Boca, 13 c.	£9	
Natal, 10 t. 8	131	
Melbourne, 10	87	
Napier, 3	7	
Hrisbane, 5	12	
Chemicals (otherwise undescribed)		
Brussels, 11 drs. 2 t. 10 c.	£61	
Vera Cruz, 4 cs.	13	
Napier, 8	19	
Oporto, 2 cks.	13	
Nagasaki, 1	10	
Chloride of Lime—		
Pt. Elizabeth, 20 cs.	£26	
Citric Acid—		
Antwerp, 1 t. 5 c.	£210	
Yokohama, 18	149	
St. Petersburg, 10	2 cks. 173	
Montreal, 11	82	
Hamburg, 1	10 kgs. 251	
Sulina, 1 cs.	8	
Lisbon, 2	5 cks. 60	
Oporto, 4	35	
Leghorn, 5	43	
Lisbon, 5	44	
Copenhagen, 5	41	
Coal Products—		
Alizarine		
Bombay, 38 kgs.	£187	
Alexandretta, 75	150	
New York, 30 cks.	416	
Aniline		
Calcutta, 1 cs.	£71	
New York, 38 cks.	260	
Sydney, 1	38	
Aniline Oil		
Dunkirk, 6 drs.	£180	
Benzol		
Hamburg, 18 cks.	£180	

Rotterdam, 19	170	
Treport, 12	113	
Calais, 80	472	
Coal Tar Dyes		
Melbourne, 2 cs.	£20	
Boston, 4 pkgs.	48	
Creosote		
Ghent, 14,834 glns.	£144	
Dieppe, 23,500	123	
Naphtha		
Calais, 30 rns.	£91	
Naphthaline		
New York, 651 bgs.	£123	
Copenhagen, 8 cks.	69	
Pitch		
Rangoon, 12 brls.	£15	
Boston, 450 2,411 pkgs.	737	
St. John, 50	35	
New York, 1,000 bgs.	150	
Mauritius, 10	7	
Havre, 293 t.	355	
Dunkirk, 462	560	
Cette, 1,171	2,116	
Philadelphia, 878	159	
Sydney, 20	11	
Rotterdam, 874	1,004	
Genoa, 1,090	1,400	
Tar		
Rangoon, 10 brls. 10 rnts.	£30	
Melbourne, 50 drs.	9	
Boston, 100	45	
Sydney, 10	9	
Mauritius, 25 pkgs.	15	
Natal, 304 200	32	
Danzig, 250	125	
Tar Salts		
Algoa Bay, 10 cs.	£45	
Toluol		
Rotterdam, 39 pkgs.	£260	
Coal Products (otherwise undes.)		
Cape Town, 150 drs.	£12	
Copper Sulphate—		
Madras, 2 t.	£30	
Bombay, 5	374	
Melbourne, 2 10 c.	38	
Vera Cruz, 10	10	
Cream of Tartar—		
Yokohama, 10 c.	£39	
Canterbury, 10	37	
Melbourne, 1 t. 10	110	
Fremantle, 1 tk.	10	
Sydney, 8 13	642	
Natal, 10	37	
Rockhampton, 3	12	
Bundaberg, 3	12	
Townsville, 3	13	
Disinfectants—		
New York, 30 drs.	£26	
Bombay, 18 10 t. 2 c.	107	
E. London, 4 cs.	14	
Sydney, 24	73	
Melbourne, 1	12	
Disinfectants and Ammonia (Liquid)—		
Vera Cruz, 2 pkgs.	£9	
Flowers of Sulphur—		
Sydney, 4 t.	£35	
Guano—		
Landerneau, 243 t.	£2,430	
Genoa, 50	500	
Hypophosphite of Lime—		
Philadelphia, 5 c.	£82	
Iron Sulphate—		
Napier, 2 t. 2 c.	£10	
Manure—		
Demerara, 23 t. 9 c.	£280	
Cape Town, 120	850	
Surinam, 7	33	
Lisbon, 2	9	
Genoa, 97 10	201	
Treport, 19 19	120	
Charente, 151 3	870	
Bordeaux, 20 13	137	
Mauritius, 10 12	250	
Nitric Acid—		
Boca, 2 c.	£8	
Jersey, &c., 28 cbys.	52	
Oxalic Acid—		
Yokohama, 10 c.	£16	
St. Petersburg, 2 cks.	19	
Phosphoric Acid—		
Berbec, 5 t. 3 c.	£88	
Potash—		
Calcutta, 6 cs.	£20	
Potash Crystals—		
Melbourne, 3 c.	£50	

Potash Salts—		
Algoa Bay, 22 t. 14 c.	£2,816	
Potassium Bichromate—		
Batoum, 2 cks.	£25	
Potassium Chlorate—		
Hamilton, 5 c.	£20	
Sydney, 10	40	
Potassium Cyanide—		
New York, 9 c.	£51	
Demerara, 6	17	
Madras, 2	13	
Shanghai, 4 cs.	45	
Durban, 2	12	
Potassium Prussiate—		
Yokohama, 10 c.	£39	
Rotterdam, 7 cks.	85	
Saltcake—		
Karlstad, 200 t.	£300	
Ghent, 160	280	
Gothenburg, 210	240	
Saltpetre—		
M. Video, 14 c.	£15	
B. Ayres, 1 t. 8	30	
Melbourne, 3 10	60	
Gothenburg, 1	21	
Amsterdam, 2	44	
Ghent, 1 2	25	
Oporto, 1 17	38	
Sheep Dip—		
Danedin, 256 pkgs.	£206	
Wellington, 210 10 cks.	134	
Natal, 600 drs.	121	
Falklands, 137	391	
B. Ayres, 1,000 cs.	3,000	
Bombay, 10 t. 2 c.	92	
Hamburg, 10 pkgs.	10	
Sandy Point, 100 cs.	300	
Soda—		
Cape Town, 3 t. 18 c.	£16	
Algoa Bay, 17	4	
Pt. Elizabeth, 11	14	
Huelva, 1 1	7	
E. London, 1 8	9	
Soda Crystals—		
Port Alegre, 16 c.	£3	
Trinidad, 1 t. 2	5	
Berbec, 15	3	
Demerara, 1 12	£6	
Sodium Bicarbonate—		
St. Petersburg, 17 t. 10 c.	£350	
Brisbane, 5	34	
Demerara, 12	5	
Hong Kong, 1 10	12	
Rockhampton, 10	4	
Townsville, 10	4	
Sodium Nitrate—		
Natal, 1 c.	£10	
Sodium Sulphide—		
Montreal, 3 c.	£20	
Sodium Sulpho-Carbonate—		
Philadelphia, 5 c.	£47	
Strontium—		
Yokohama, 5 c.	£7	
Strontium Nitrate—		
Hamilton, 8 c.	£11	
Sulphur—		
Demerara, 20 brls.	£29	
Natal, 3 t. 15 c.	28	
Sulphuric Acid—		
Natal, 41 cs. 4 c.	£61	
Superphosphate—		
Landerneau, 57 t. 1 c.	£171	
Tartaric Acid—		
Melbourne, 2 t.	£200	
Fremantle, 1 tk.	12	
Sydney, 15 c.	77	
Boulogne, 5	28	
Zinc Sulpho-Carbonate—		
Philadelphia, 5 c.	£44	

Ammonia (Liquid)—		
Vera Cruz, 2 t. 7 c. 3 q.	£73	
Coquimbo, 5	17	
Ammonium Carbonate—		
Gothenburg, 10 c. 1 q	£18	
Barcelona, 10	16	
Ammonium Chloride—		
Syra, 9 c.	£16	
Montreal, 2 t. 2	50	
Ontario, 6	10	
Bombay, 5 5	163	
Piraeus, 3	5	
Volo, 4	7	
Genoa, 3 6	108	
Alexandria, 1	35	
Beyrout, 2 4	74	
Galatz, 5	9	
Patras, 4	7	
Ibrail, 1 11	51	
Tripoli, 5 2 q.	10	
Trieste, 1 1	35	
Barcelona, 1	33	
Ammonium Sulphate—		
Bordeaux, 35 t. 12 c.	£468	
Valencia, 51 8	666	
Antwerp, 26	338	
Barbadoes, 10 3 1 q.	144	
Rotterdam, 74 19 3	1,125	
Montreal, 4 16 2	16	
Barcelona, 40	574	
Hamburg, 30 6 3	450	
Asbestos—		
Calcutta, 2 cs.		
Singapore, 1		
Hong Kong, 4		
Lisbon, 24 bls.		
Malaga, 1 1 ck.		
Barium Chlorate—		
Hamburg, 19 c.	£80	
Bleaching Powder—		
Baltimore, 165 cks.		
Bombay, 10 cs.		
Boston, 721	255	
Calcutta, 120		
Genoa, 17		
Messina, 18		
Montreal, 18		
M. Video, 677 75 brls.	9 bks.	
New York, 147		
San Sebastian, 14		
Santander, 60		
Vera Cruz, 4		
Amsterdam, 15		
Passages, 15		
Borax—		
Malaga, 5 c. 3 q.	£8	
Antwerp, 4 t. 19 1	150	
Caoutchouc—		
Coronel, 2 cs.		
Carbolic Acid—		
Rotterdam, 5 t.	£300	
Calcutta, 2 c. 3 q.	7	
M. Video, 13	47	
Caustic Soda—		
Baltimore, 270 brls.		
Brindisi, 17 dms.		
Carthagena, Sp., 10		
Coquimbo, 12		
Hamburg, 6 brls.		
New York, 265 dms.		
Para, 30		
Philadelphia, 60		
Algoa Bay, 9 cs.		
Antwerp, 14		
Aracaju, 10		
Bahia, 60		
Beyrout, 85		
Boston, 18		
B. Ayres, 20		
Fiume, 34		
Galatz, 550		
Halifax, 35		
Hioogo, 50		
Hong Kong, 4 cks.		
Iloilo, 2		
La Guayra, 40		
Maceio, 30		
Monterey, 32		
N. Orleans, 34		
Oporto, 30		
Passages, 11		
Pernambuco, 200		
Piraeus, 6		
Pt. Elizabeth, 10		
Rotterdam, 73		
Sau Sebastian, 126		

LIVERPOOL.

Week ending October 18th.

Acetic Acid—		
Messina, 4 t.	£60	
Alum—		
Vigo, 1 t. 10 c.	£7	
Beyrout, 2 10	15	
Montreal, 23 4 1 q	110	
Piraeus, 1 9	7	
Cadiz, 2 2	12	
Alexandria, 7	42	

Seville, 48	Hamburg, 30 dms.	Cameroons, 45 t. 2 c.	Patras, 40
Sydney, 15	Ibraill, 7	Cape Lopez, 4 9	Philadelphia, 31 2,100 130 b
Vigo, 20 cs.	Jaffa, 2	E. London, 8 18	Rotterdam, 17 275
Yokohama, 50	Manaos, 13	Indianapolis, 20	Smyrna, 212 brls.
Chemicals (otherwise undescribed)	Nassau, 2 28	Ingersoll, 38	Talcahuano, 11
Genoa, 1 t. £35	Port au Prince, 8	Landana, 7	Valparaiso, 10
Trebizonde, 14 c. 23	Santiago de Cuba, 1	Monrovia, 5	Vigo, 6
Odessa, 10 17	Sherbro, 3	Montreal, 1,075	Brisbane, 231
Piræus, 3 5	Teneriffe, 48	Newcastle, 25 17	Candia, 390
Alexandretta, 10 17	Valparaiso, 64 50 50 pkgs.	Newport News, 65	Canea, 100
New York, 5 3 156	Warri, 5	Old Calabar, 602 5	Corfu, 156
China Clay—	Arroyo, 1	Pedre, 5	Hamburg, 17 200 b
Boston, 326 t. 10 c.	Calcutta, 25	Rangoon, 915	M. Video, 25
New York, 239	Humacao, 4 cks.	Rotterdam, 200	Piræus, 10
Rio de Janeiro, 11 15 16 cks.	Painters' Colours—	St. John's N.F., 5	Rio de Janeiro, 50
Bombay, 10	Axim, 2 cks.	San Francisco, 456 14	San Sebastian, 12
Messina, 10	Bahia, 3 480 kgs.	Sherbro, 350	Sydney, 58
Coal Products—	Belize, 2 134 2 brls.	Sydney, 175	Yokohama, 135
Alizarine	Bilbao, 2 134 2 brls.	Tabor, 7 3	Soda Crystals—
Boston, 5 cks.	B. Ayres, 100 40 11 cs.	Trinidad, 17 17	Malta, 25 brls.
Aniline Colours	Calcutta, 50 35	Victoria, B.C., 200 6	Philadelphia, 167 50 cks.
Barcelona, 1 cs.	Campaña, 17 crts. 41	Cabenda, 6 8	Smyrna, 20
Montreal, 2 kgs.	Carupano, 10 8 33	Eloby, 8 18	Batavia, 40
Constantinople, 6	Lagos, 8	Gaboon, 11 8	Romby, 20 kgs.
Genoa, 1	Lisbon, 69 2 12	Galveston, 504 10	Boston, 940
Salonica, 5	Manila, 8	Ghent, 260	Cairo, 50
Shanghai, 25	Mauritius, 782 6 2	Gr. Bassa, 5	Corfu, 25
Aniline Dyes	M. Video, 6 2	Halifax, 510	New York, 28 6
New York, 1 kg.	Odessa, 5	Loango, 19 3	Quebec, 370
Aniline Salts	Pira, 5 pkgs. 8 tcs. 1 66 7 1	Manaos, 17 17	Rotterdam, 10
Venice, 5 cks.	Rio de Janeiro, 76 6	Nykjobing, 660	St. John's, N.F., 35 b
New York, 37 brls.	St. John's, N.B., 8 124	Portland, Ont., 25	Shanghai, 7
Creosote	San Juan, 18	Valparaiso, 300	Sodium Silborate—
Hamburg, 3 cks.	Santos, 10 500 12 40	Salt Cake—	Antwerp, 40 cks.
Pitch	Shanghai, 3	Ghent, 100 t. £119	Montreal, 10 brls.
Galatz, 100 brls.	Sierra Leone, 3	Saltpetre—	Stettin, 17
Marseilles, 677 t.	Smyrna, 50	Manaos, 10 c. £11	Sodium Bicarbonate—
Sierra Leone, 10	Toronto, 60 2	Callao, 1 t. 6 3 q. 31	Calcutta, 200 kgs. 500 bgs.
Tar	Antwerp, 18	Sheep Dip—	Callao, 10
Galatz, 100 brls.	Bathurst, 1 8	Toronto, 1 t. £22	Hamburg, 100 1,020
Sherbro, 25	Bonny, 13 2	Punta Arenas, 13 cks. 79	Hamilton, 300
Sierra Leone, 10 cks.	Guayaquil, 70 25	Soap—	Havre, 50
Warri, 5	Loango, 14 dms.	Akami, 15 bxs.	Montreal, 8 14 bbls
Adda, 5 10 dms.	Manaos, 4 2 5 bls.	Akassa, 73	New York, 100
Demerara, 30	Montreal, 104 1	Axim, 20	Para, 3 cks.
Landana, 5	Old Calabar, 7 1	Batanga, 50	Rotterdam, 20
Colours—	Pernambuco, 26	Bombay, 500 3 cs.	Santos, 10 43
Coquimbo, 1 ck.	Philadelphia, 200 40	Cameroons, 200	Cairo, 10
Genoa, 3	Pence, 2	C. C. Castle, 100 1	Constantinople, 90
Lisbon, 59	Rangoon, 10 dms.	Constantinople, 2	Halifax, 1
Copperas—	St. John's, N.F., 4 23	Gibraltar, 325	Kurrachee, 200
Caldera, 16 t. 10 c. 3 q. £30	San Francisco, 12	Gonaives, 100	Marseilles, 20
Syra, 8	Volo, 2	Guayaquil, 200	Rangoon, 50
Copper Sulphate—	Paraffin Wax—	Hong Kong, 170 20	St. John's, N.F., 13
Galatz, 10 c. £9	Bordeaux, 28 bgs. 44 cs.	Landana, 200	Seville, 25
Seville, 19 t. 2 1 q. 304	Salonica, 10	Las Palmas, 739	Smyrna, 25
Ibraill, 1 10 23	Patras, 8	Madras, 5	Sodium Carbonate—
Galveston, 20 330	Phosphorus—	Malta, 30 49	Barcelona, 88 cks.
Bombay, 2 5 39	Kobe, 6 cs. £61	Mandy, 81	Sodium Chlorate—
Valparaiso, 4 9 1 73	Shanghai, 20 260	N'Kombi, 20	Hamburg, 72 kgs.
Odessa, 10 3 160	Yokohama, 10 130	Old Calabar, 200	New York, 60
Disinfectants—	Hiogo, 10 130	Palma, 474	Rotterdam, 20
Bombay, 2 t. 6 c. £15	Plumbago—	Philadelphia, 20 6 cks.	Danzig, 4 cks.
Rangoon, 10 6	Valencia, 4 bgs. 1 ck.	Ponce, 50	St. Petersburg, 40
Para, 12 1 q. 20	Potassium Bichromate—	Pt. Natal, 225	Trieste, 20
Guano—	Aleppo, 13 c. 1 q. £29	Rangoon, 1,394 20	Sodium Hyposulphite—
Malaga, 50 t. £450	Oporto, 3 1 8	St. John's, N.F., 190 40	Calcutta, 8 cks.
Iron Oxide—	Potassium Chlorate—	Singapore, 2,538 4	Montreal, 50 kgs.
Santander, 4 t. 6 c. 2 q. £24	Vera Cruz, 1 t. £74	Teneriffe, 220	Sodium Silicate—
Para, 11 43	Calcutta, 10 c. 28	Trinidad, 1,300	Barcelona, 82 cks.
Lime—	Shanghai, 2 10 175	Alexandria, 1,300	Malaga, 10 brls.
Elmina, 25 brls.	New York, 8 15 522	Bermuda, 90 7	Oporto, 10
Opobo, 3 cks.	Hiogo, 49 8 3,117	B. Ayres, 110	Seville, 20
Cabenda, 6 t. 10 c. £6	Copenhagen, 5 312	Gaboon, 1	Sodium Sulphite—
Litharge—	Gr. Canary, 1 56	Genoa, 50 1	Hamburg, 30 brls.
Philadelphia, 20 cks.	Naples, 6 10 36	Havana, 480	Sulphate of Lime—
Magnesia—	Riga, 6 321	Havre, 1	Arucao, 5 t.
Barcelona, 21 t. 3 c. 2 q. £320	Antwerp, 2 139	Kingston, Ja., 113	Sulphur—
Havana, 8 cs. 7 2 15	Boston, 1 10 88	New York, 73	Boston, 200 t. 5 c. £1
Magnesium Sulphate—	Hamburg, 2 17 163	Piræus, 1 10 bbls.	Pt. Elizabeth, 5 2
Bombay, 150 bgs.	Rotterdam, 4 7 242	Rotterdam, 500	Montreal, 211 4 1 q.
Alexandria, 100 kgs.	St. Petersburg, 38 10 2,310	Sierra Leone, 1	Jeddah, 3
Montreal, 20 brls.	Stettin, 11 10 794	Valparaiso, 7	Halifax, 7 10
Manganese—	Sydney, 5 304	Soda—	Sulphuric Acid—
Limassol, 3 cs.	Yokohama, 10 740	St. John's, N.F., 40 bxs.	Para, 11 c.
Manure—	Konigsberg, 1 10 61	Soda Alkali—	Superphosphate—
Venice, 98 t. 10 c. 2 q. £284	San Juan, 1	Corfu, 67 brls.	Valencia, 25 t. 24 d.
Havre, 100 4 486	Potassium Silicate—	Galatz, 17	Tartaric Acid & Soda Crystals
Malaga, 30 250	Valencia, 15 t. 15 c. £60	Genoa, 70	Loango, 1 ck.
Valencia, 50 9 1 136	Rosin—	Messina, 20	Tin Salts—
Metallic Sodium—	Hamburg, 36 brls.	Odessa, 125	Bilbao, 3 c.
Bilbao, 13 c. £27	Salt—	Smyrna, 55	Turpentine—
Rotterdam, 2 t. 15 3 q. 555	Amsterdam, 250 t.	Soda Ash—	Carupano, 30 crts.
Nitric Acid—	Antwerp, 100	Antwerp, 15 cks. 3,070 bgs.	Penang, 70 dms.
Coquimbo, 8 c. 2 q. £31	Astoria, 50	Baltimore, 21 1,594	Campaña, 30 crts.
Oxalic Acid—	Baltimore, 130	Boston, 132 810	Varnish—
Marseilles, 7 c. 1 q. £10	Benin, 10	Calcutta, 32	Belize, 1 cs.
Paint—	Bereby, 9	Copenhagen, 5	Zinc Chloride—
Ceara, 14 cks.	Black Point, 5	Gothenburg, 40	Bordeaux, 16 t. 14 c. 1 q.
Colombo, 28	Boston, 200	Hamilton, 400 10 brls.	Bombay, 6 5 2
Galatz, 96 kgs.	Brass, 10	Montreal, 152 630	Valparaiso, 10 cks.
	B. Ayres, 25	N. York, 306 tcs. 31 5,674	
	Buguma, 25	Oporto, 6 pps.	
	Calcutta, 3,991	Pasages, 10 brls.	

HULL.

Week ending October 14th.

Alkali—	
Abo,	2 cks.
Danzig,	22
Riga,	18
Ammonium Sulphate—	
Hamburg,	255 bgs.
Rotterdam,	92
Aniline Salts—	
St. Petersburg,	20 cs. 39 cks.
Basic Slag—	
Venice,	100 t.
Bleaching Powder—	
Christiania,	1 ck.
Danzig,	43
Frank,	57
Borax—	
Riga,	2 cks.
Caustic Soda—	
Catania,	35 dms.
Danzig,	50
Frank,	53
Stettin,	51
Venice,	20
Chemicals (otherwise undescribed)	
Antwerp,	20 cs.
Abo,	1 ck. 20 pkgs.
Bordeaux,	24
Christiania,	5 10
Copenhagen,	2 pks.
Cologne,	1
Drontheim,	336 slbs.
Danzig,	161 22
Flushing,	1 pkge.
Gothenburg,	80
Hamburg,	15 6
Konigsberg,	8
Liljan,	24
Riga,	58 300
Rotterdam,	30 6
Stettin,	10 14 31
St. Petersburg,	22 37 pkgs.
Trieste,	26
Uleaborg,	3
Wasa,	9
Copper Sulphate—	
Danzig,	86 cks.
Cottonseed Oil—	
Amsterdam,	22 c.
Christiania,	42
Frank,	100
Flushing,	197
Gothenburg,	150
Hamburg,	1,363
Rotterdam,	935
Stettin,	261
Trieste,	1,102
Creosote—	
Copenhagen,	40 cks.
Gothenburg,	150
Dyestuffs (otherwise undescribed)	
Boston,	5 cks.
Christiania,	10 bls.
Danzig,	5 cks. 4 cs.
Flushing,	2
Rotterdam,	6 5
Stettin,	22 156 bgs.
St. Petersburg,	63
Guano—	
Dunkirk,	253 bls.
Linseed Oil—	
Bergen,	34 c.
Boston,	28
Christiansund,	14
Christiania,	315
Christiansand,	105
Drontheim,	41
Hamburg,	189
Rotterdam,	103
Stavanger,	38
Uleaborg,	7
Litharge—	
Riga,	4 cks.
Manure—	
Dunkirk,	30 t.
Mineral White—	
St. Petersburg,	690 bgs.
Painters' Colours—	
Antwerp,	10 cks. 200 pkgs.
Amsterdam,	12
Abo,	1
Boston,	1 55 pkgs.
Bordeaux,	8
Christiania,	12 7 dms. 40 pkgs.
Christiansand,	35
Danzig,	10
Dunkirk,	16
Flushing,	1 cs.

Ghent,	1
Hamburg,	11
Harlingen,	4
Riga,	8
Rotterdam,	25
Stettin,	2
Uleaborg,	1
Wasa,	2
Paraffin Wax—	
Bari,	5 cs.
Paris White—	
Cologne,	4 cks.
Pitch—	
Antwerp,	16 bgs. 140 t.
Bergen,	2 cks.
Dunkirk,	70
Salt—	
Christiania,	10 cs. 10 bls.
Soap—	
Bergen,	20 cks.
Christiania,	31 cs.
Tar—	
Antwerp,	6 cks.
Copenhagen,	16
Danzig,	5
Rotterdam,	10
Stettin,	5
Toluol—	
Rotterdam,	48 cks.
Yarnish—	
Antwerp,	6 cs.
Copenhagen,	1 3 bls. 3 cks.
Ghent,	1 brl.

GLASGOW.

Week ending October 19th.

Acids—	
Straits,	3 t. 5½ c. £27
Alum—	
Straits,	2 t. 15½ c. £23. 13s.
Alumina Sulphate—	
Pt. Said,	13 t. 11 c. £35
Ammonium Sulphate—	
Barcelona,	58 t. 11½ c. £782
Demerara,	25 14½ 388
Java,	83 11½ 1,056
Hamburg,	50 650
Bleaching Powder—	
Quebec,	29 t. 7½ c. £230
Pt. Said,	101 3 860
Wellington,	2 ½ 20
Bombay,	5 11 58
Castor Oil—	
Trinidad,	1 t. 18½ c. £47
Caustic Soda—	
Wellington,	16 t. 1 c. £187
Coal Products—	
Alizarine Colours	
Wellington,	15½ c. £80
Creosote Oil	
Bordeaux,	216 t. 9 c. £450
Naphtha	
Wellington,	8½ c. £25
Bordeaux,	14½ tuns 16
Pitch	
Quebec,	25 t. 10 c. £38
Sables d'Olonne,	884 4 1,281
Rotterdam,	33 22
Amsterdam,	450 630
Tar	
Bombay,	1 t. 7½ c. £20
Guayaquil,	1 t. 7½ c. 7
Calcutta,	75 90
Java,	23 13 155
Montreal,	155
Cottonseed Oil—	
Hungary,	1 t. 14 c. £38. 10s.
Hamburg,	30 bls. £129
Copperas—	
Bombay,	12 t. 15 c. £21
Cream of Tartar—	
Quebec,	5½ c. £22
Dyestuffs—	
Aniline	
Calcutta,	10 c. £80
Extracts	
Barcelona,	2 t. 18 c. £64
Fustic	
Rotterdam,	80 bgs. £52
Fustic Extract	
Wellington,	12½ c. £22
Logwood	
Wellington,	5 t. 4½ c. £58
Barcelona,	7 3½ 75
Dyestuffs (otherwise undescribed)	
Quebec,	9½ c. £28

Farina—	
Pt. Said,	£280
Lead Acetate—	
Quebec,	1 t. 16 c. £44
Montreal,	17½ 23
Linseed Oil—	
Chili,	4 t. 19½ c. £110
Cape Colony,	250 glns. 27
Shanghai,	4 t. 1 77
Calcutta,	1 2½ 34
Wellington,	1,710 glns. 196
Trinidad,	1 9½ 29
Litharge—	
Montreal,	8 t. 18½ c. £121
Magnesium Sulphate—	
Bombay,	17 t. 8 c. £67
Manganese—	
Rotterdam,	10 t. £100
Hamburg,	2 3 c. 22
Muriatic Acid—	
Bombay,	5 t. 7½ c. £26
Nitrate of Lead—	
Montreal,	7 t. 10½ c. £130
Paint—	
Chili,	6 t. 15½ c. £125
Shanghai,	10 19½ 214
Pt. Said,	42
Wellington,	12½ £24 10s.
Japan,	1 £24
Bombay,	12 12½ 116
Painters' Colours—	
Cape Colony,	£48
Colombo,	132
Calcutta,	144
Malta,	2 t. 10½ c. 36
Wellington,	242
Trinidad,	3 11½ 72
Demerara,	140
Java,	4 6½ 47
Hong Kong,	2 4 32
Paraffin Wax—	
Chili,	1 t. 17½ c. £56
Hungary,	5 9½ 173
Wellington,	7 166
Italy,	27 6½ 788
Bordeaux,	1 22
Hamburg,	1 19½ 46
Potassium Bichromate—	
Calcutta,	11½ c. £27
Wellington,	15½ 32
Barcelona,	28 t. 5½ 1,160
Italy,	38 11½ 1,431
Rotterdam,	5 cks. 60
Hamburg,	5 80
Japan,	5 8½ 215
Montreal,	4 6½ 171
Potassium Prussiate—	
Barcelona,	7 t. 10 c. £572
Rosin—	
Pt. Said,	16 t. 8 c. £65
Rosin Oil—	
Rotterdam,	10 bls. £20
Amsterdam,	25 50
Sheep Dip—	
Wellington,	48 t. 3¼ c. £950
Soap—	
Chili,	1 t. £21
Colombo,	2 5 c. 44
Trinidad,	5 4 £88 10s.
Soda Ash—	
Wellington,	9 t. 5½ c. £50
Sodium Bichromate—	
Barcelona,	13 t. 2 c. £468
Italy,	28 12½ 833
Montreal,	1 1¼ 36
Sodium Nitrate—	
Demerara,	10 t. 11½ c. £98
Sulphuric Acid—	
Wellington,	3 t. £31
Tallow—	
Trinidad,	6 t. 17½ c. £206
Rotterdam,	6 181
Amsterdam,	1 8 35
Tin Salts—	
Trinidad,	2,542 lbs. £71
Yarnish—	
Bombay,	9½ c. £35
White Lead—	
Calcutta,	2 t. 14½ c. £32
Wellington,	17 7½ 367

TYNE.

Week ending October 14th.

Alkali—	
Antwerp,	3 t. 3 c.
Rotterdam,	3 7
Amsterdam,	41 17
Savona,	27 13

Alumina Sulphate—	
Venice,	1 t.
Ammonium Sulphate—	
Odense,	2 t. 10 c.
Anthracene—	
Rotterdam,	35 t. 4 c.
Antimony—	
Hamburg,	2 t.
Rotterdam,	17 10 c.
Arsenic—	
Venice,	12 t. 4 c.
Barium Carbonate—	
Hamburg,	100 t.
Venice,	4 18 c.
Bleaching Powder—	
Antwerp,	35 t. 18 c.
Christiania,	20 1
Rotterdam,	4 18
Libau,	34 5
Helsingborg,	14 7
Venice,	5 2
Amsterdam,	37 11
Gothenburg,	29 13
Castor Oil—	
Bergen,	17 c.
Caustic Soda—	
Gothenburg,	4 t. 18 c.
Antwerp,	2
Hamburg,	4 7
Venice,	39 3
Amsterdam,	11 9
Colours—	
Copenhagen,	4 c.
Antwerp,	10
Iron Oxide—	
Hamburg,	1 c.
Litharge—	
Amsterdam,	1 t. 3 c.
Magnesia—	
Antwerp,	1 c.
Hamburg,	18
Constantinople,	3
Manganese—	
Nicolaieff,	10 t.
Paint—	
Antwerp,	4 c.
Christiania,	4
Tonsberg,	2
Soda—	
Christiania,	10 t. 1 c.
Odense,	10 7
Svendborg,	10 7
Rotterdam,	25 2
Amsterdam,	50
Soda Ash—	
Antwerp,	9 t. 17 c.
Hamburg,	9 6
Christiania,	20 8
Venice,	60 18
Gothenburg,	50 7
Sodium Nitrate—	
Gothenburg,	1 t.
Sulphur—	
Gothenburg,	50 t.
Tallow—	
Hamburg,	18 c.

GOOLE.

Week ending October 11th.

Chemicals (otherwise undescribed)	
Ghent,	10 kgs.
Hamburg,	8 cks.
Rotterdam,	20
Coal Products (otherwise undes.)	
Antwerp,	49 cks.
Dunkirk,	1
Boulogne,	3 cs. 1 1 dm. 20 tins
Hamburg,	1 4
Rotterdam,	65
Dyestuffs (otherwise undescribed)	
Boulogne,	2 cks.
Manure—	
Hamburg,	140 bgs.
Jersey,	220 t.

GRIMSBY.

Week ending October 14th.

Chemicals (otherwise undescribed)	
Antwerp,	3 pkgs.
Coal Products (otherwise undes.)	
Dieppe,	176 cks.
Dyestuffs (otherwise undescribed)	
Dieppe,	18 cks.

PRICES CURRENT.

WEDNESDAY, OCTOBER 25th, 1893.

PREPARED BY MESSRS. HIGGINBOTTOM AND CO., 116, PORTLAND STREET, MANCHESTER.

The values stated are F.O.R. at maker's works, or at usual ports of shipment in U.K. The price in different localities may vary.

Acids:—

	£	s.	d.
Acetic, 25 % and 40 %	per cwt.	7/6 & 11/3	
Glacial		50/-	
Arsenic S.G., 2000°		0 14 6	
Fluoric	per lb.	0 0 3 1/4	
Muriatic (Tower Salts), 30° Tw.	per bottle	0 0 10	
(Cylinder), 30° Tw.		0 3 0	
Nitric 80° Tw.	per lb.	0 0 1 1/4	
Nitrous		0 0 1 1/4	
Oxalic	nett	0 0 3 1/4	
Phosphoric, 1750°		0 1 2 1/2	
Picric		0 1 0	
Sulphuric (fuming 50 %)	per ton	15 10 0	
(monohydrate)		5 10 0	
(Pyrites, 168°)		3 0 0	
(free from arsenic, 145°)		1 5 0	
Sulphurous (solution) S.G. 1025		3 0 0	
Tannic (pure)	per lb.	0 1 2	
Tartaric		0 0 11 1/2	
Arsenic, white powdered	nett per ton	13 5 0	
Alum (loose lump)		5 2 6	
Alumina Sulphate (pure)		5 0 0	
Aluminoferic		2 10 0	
Aluminium	per lb.	0 3 0	
Ammonia, Anhydrous		0 1 1	
88°=28°	per lb.	0 0 3	
=24°		0 0 2 1/4	
Carbonate	nett	0 0 3 1/2	
Muriate	per ton	23 0 0	
(sal-ammoniac) 1st & 2nd	per cwt.	37/- & 35/-	
Nitrate	per ton	42 0 0	
Phosphate	per lb.	0 0 10 1/2	
Sulphate (grey) London	per ton	12 10 0	
(grey) Hull		12 10 0	
Aniline Oil (pure)	per lb.	0 0 6 1/4	
Aniline Salt		0 0 5 3/4	
Antimony	per ton	45 10 0	
(tartar emetic)	per lb.	0 1 0	
(golden sulphide)		0 0 10	
Barium Chloride	per ton	7 10 0	
Carbonate (native)		3 10 0	
Sulphate (native levigated)		45/- to 75/-	
Bleaching Powder, 35 %	nett	8 5 0	
Liquor, 7 %		3 10 0	
Bisulphide of Carbon		11 15 0	
Chromium Acetate (crystal)	per lb.	0 0 6	
Calcium Chloride	per ton	2 5 0	
China Clay (at Runcorn) in bulk		17/6 to 35/-	

Coal Tar Products and Dyes:—

Alizarine (artificial) 20 %	net per lb.	0 0 8
Magenta		0 3 9
Anthracene, 30 % A, f.o.b. London	per unit per cwt.	0 1 2
Benzol, 90 % nominal	per gallon	0 1 6
50/90		0 1 7 1/2
Carbolic Acid (crystallised 40°)	per lb.	0 0 5 1/2
(crude 60°)	per gallon	0 1 5
Creosote (ordinary)		0 0 3
(filtered for Lucigen light)		0 0 3 1/2
Crude Naphtha 30 % @ 120° C.		0 0 8
Grease Oils, 22° Tw.	per ton	2 5 0
Pitch, f.o.b. Liverpool or Garston		1 6 0
Solvent Naphtha, 90 % at 160°	per gallon	0 1 2
"Lucigen" and "Wells" Oils		0 0 2 1/2
Copper	per ton	42 10 0
Sulphate		16 0 0
Oxide (copper scales)		40 0 0
Glycerine (crude)		13 0 0
(distilled S.G. 1250°)		43 0 0
Iodine	nett, per oz.	0 0 9
Iron Sulphate (copperas)	per ton	1 12 6
Sulphide (antimony slag)		2 0 0
Lead (sheet) for cash		11 0 0
Litharge Flake (ex ship)		13 0 0
Acetate (white)		25 15 0
brown		17 10 0
Carbonate (white lead) pure		20 0 0
Nitrate		20 0 0

Lime, Acetate (brown)	per ton	7 0 0
(grey)		11 5 0
Magnesium (ribbon and wire)	per oz.	0 2 3
Chloride (ex ship)	per ton	2 7 6
Carbonate	per cwt.	1 17 6
Hydrate	per ton	17 0 0
Sulphate (Epsom Salts)	per ton	2 19 0
Manganese, Sulphate		17 15 0
Borate	per cwt.	2 12 6
Ore, 70 %	per ton	4 5 0
Methylated Spirit, 61° O.P.	per gallon	0 2 0
Naphtha (Wood), Solvent		0 3 9
Miscible, 60° O.P.		0 4 9

Oils:—

Cotton-seed	per ton	23 0 0
Linseed		22 10 0
Petroleum, Russian	per gallon	0 0 4
American		0 0 5 1/4
Phosphorus (yellow)	per lb.	0 2 3
(red)		0 2 9
Potassium (metal)	per oz.	0 3 7
Bichromate	nett per lb.	0 0 4 1/2
Carbonate, 90% (ex ship)	per ton	16 10 0
Chlorate	per lb.	0 0 8 1/2
Cyanide, 98%		0 2 0
Hydrate (Caustic Potash) 80/85 %	per ton	21 15 0
(Caustic Potash) 75/80 %		20 10 0
(Caustic Potash) 70/75 %		20 0 0
Nitrate (refined)	per cwt.	1 2 6
Permanganate	per cwt.	3 5 0
Prussiate Yellow	per lb.	0 0 8 1/4
Sulphate, 90 % (ex ship)	per ton	9 15 0
Muriate, 80 % (do.)		8 0 0
Silver (metal)	per oz.	0 2 9 1/4
Nitrate		0 2 10
Sodium (metal)	per lb.	0 3 4
Carb. (refined Soda-ash) 48 %	nett per ton	5 10 0
(Caustic Soda-ash) 48 %		4 10 0
(Carb. Soda-ash) 48 %		4 10 0
(Carb. Soda-ash) 58 %		4 10 0
(Soda Crystals)		3 5 0
Acetate (ex-ship)		16 0 0
Arseniate, 45 %		11 0 0
Chlorate	per lb.	0 0 8 1/4
Borate (Borax)	net, per ton	28 10 0
Bichromate	per lb.	0 0 3 1/4
Hydrate (77 % Caustic Soda) (f.o.b.) net pr. ton		12 0 0
(74 % Caustic Soda)		12 0 0
(70 % Caustic Soda)		11 0 0
(60 % Caustic Soda)		10 0 0
(60 % Caustic Soda, cream) (f.o.b.)		9 15 0
Bicarbonate		7 0 0
Hyposulphite		6 10 0
Manganate, 30%		16 0 0
Nitrate (95 %) ex-ship Liverpool	per cwt.	0 9 3
Nitrite, 98 %	per ton	29 10 0
Phosphate		15 0 0
Silicate (glass)	per ton	5 7 6
(liquid, 100° Tw.)		4 5 0
Stannate, 40 %	per cwt.	3 0 0
Sulphate (Salt-cake)	per ton	1 2 6
(Glauber's Salts)		1 10 0
Sulphide		8 10 0
Sulphite		5 15 0
Strontium Hydrate, 100%		8 10 0
Sulphocyanide Ammonium, 95 %	per lb.	0 0 7
Barium, 95 %		0 0 5 1/4
Potassium		0 0 7
Sulphur (Flowers)	per ton	8 0 0
(Roll Brimstone)		6 10 0
Brimstone: Best Quality		4 2 6
Superphosphate of Lime (26%)		2 7 6
Tallow		28 0 0
Tin Crystals	per lb.	0 0 6 1/4
Zinc (Spelter)	per ton	16 17 6
Chloride (solution, 96° Tw.)		5 15 0

THE CHEMICAL TRADE JOURNAL AND OIL, PAINT and COLOUR REVIEW.

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SATURDAY, NOVEMBER 4, 1893.

Vol. XIII.

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Notices.

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Communications for the Editor, if intended for insertion in the next issue, should reach the office not later than **Tuesday** morning.

Subscribers are invited to forward items of intelligence, or cuttings from newspapers, of interest to the trades concerned.

Reports, and correspondence on all matters of interest to the chemical and allied industries, home and foreign, are solicited. Contributors should condense their matter as much as possible, and send one side only of the paper, and in all cases give their names and addresses, not necessarily for publication. Sketches should be sent on separate sheets.

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THE INSPECTED ON INSPECTION.

AS time rolls on, by degrees the evidence given before the Labour Commission gets into shape, and when the digest of the evidence is obtainable in the form of a Blue Book of comparatively small proportions compared with the voluminous compilations of groups A and B, sanguine folks are inclined to think that the final report is not so far off.

Last Christmas we had to wait for the time when such report should be ready, and we think we may safely venture to predict that the New Year will find us in much the same position.

As far as the chemical trade is concerned, the delay will not be of any great importance perhaps, as the position assigned to it is not a very prominent one. The evidence occupies but a few pages, less than ten in number, although it was pretty generally imagined by the public that the chemical industry would when laid bare by the Commission reveal a veritable chamber of horrors; while the benefit which the chemical worker will derive will be in the same proportion that the length of his evidence bears to the sum of the evidence given before the Commission—a mere iota.

The sensationalist found opportunity for the exercise of his powers over the evidence given upon the unhealthiness of the employment, but this question was almost completely disposed of early in this year in these columns and elsewhere, and the committees at present investigating the conditions prevailing in the white lead and other industries are calculated to do more good to the alkali workers than half-a-dozen Royal Commissions on Labour.

An indication of how the evidence which was given on the question of health must be taken is to be found in the evidence touching the inspection of works. In regard to this matter we have fortunately the particulars afforded by the report of the Chief Alkali Inspector which are reliable, otherwise the statements of the chemical workers examined would, to say the least, be most astonishing. In any case it is interesting to hear what those who are inspected think about their inspectors, and the statements which they make show that they know very little about either the inspectors or their work.

When a witness representing chemical labour on the Tyne can say he had never seen an inspector in the works where he was employed, though he knew that they had been visited by one, it does not say much for the man's acquaintance with the conduct of a chemical works; and the rest of his evidence lies under a shadow, as there is no knowing how much of his information has been gathered from someone, who knew somebody, that had a friend, who had heard it from a relation.

Of course there is the usual list of items of information about dampers being closed and pre-concerted signs to denote the arrival of the inspector, but the men themselves are the very ones who as a rule are ready to do anything to hoodwink the inspector, to spare themselves trouble.

Because notice of the inspector's arrival is sent round a works by the manager it does not follow that the works are not properly conducted. Naturally, when about to be inspected, any man wishes to make sure that everything is right, and takes steps to secure such conditions up to the last moment. Anyone who has had experience of the laxity of most chemical workmen, and the tricks to which they will resort to save trouble (especially when as in Scotland about eighty-five per cent. of the labourers are Irish), must know how that with the best of apparatus and the strictest regulations lapses will occur, and though they may be promptly discovered and corrected the inspector is sure to pop in just at that very time. It is not so surprising, therefore, if, when he has arrived, the men are cautioned to see that every thing is all right. It is all very well for men to talk about dampers being shut off to keep the proportion of gas in the flues below that allowed by the Alkali Acts, but such statements are made by men who have not the least idea what percentage of gases exist in the flues prior to, or after the manipulation of the dampers, and they are therefore quite incapable of judging in the matter.

There are certain operations which constitute a portion of a man's work, and it is quite possible that he may be engaged in performing that operation just at the time of the inspector's visit. Take, for instance, the supplying of water to the condensing towers. It is as unjustifiable for men in their ignorance to allege that dampers are closed or opened, when the inspector is about to make his round, to procure an abnormal state of purity in the flues *pro tem.*, as it would be for the inspector to conclude that a works was not properly conducted because the man attending to the condensing towers went to see to things when he saw the inspector coming; an action which might as likely as not be prompted by the natural desire of the workman to make doubly sure that his duty had been performed; and could not be justly taken as a criterion of the way the works were conducted.

To the public, the statements made about the efficiency of the inspection would appear to call for immediate investigation of the system, but an explanation can be found without going that far. A closer scrutiny of the evidence, and a comparison of the statements, reveals a number of incidents which remove much that at first cannot be reconciled. About half of the witnesses give the lie direct to the other half, on most of the points which seem extraordinary. The particulars furnished by the Chief Alkali Inspector could not be obtained if the inspection was carried on in the manner stated by the workmen, and it is far more rational to assume that the men are labouring under delusions resulting from ignorance, than that the alkali inspectors, all of whom are men of education and experience, present fictitious returns, or draw up reports upon inspections conducted from the windows of the works' offices.

On the contrary, a very good standard by which to judge the evidence given by those witnesses who made the most startling affirmations is afforded in the following. One witness in airing his views contended that the chemical trade should be carried on for use, not for profit. The health of the operatives, he thought, was being injured in the production of chemicals which were used for no useful purpose but for adulterating, to wit, sulphate of lime. Rather a lame instance, when this article is only made in a subsidiary way to dispose of a bye-product. But the advantage to be gained by the "use not profit" system is, according to the witness, that a large proportion of the chemical industry would not be required. Exactly so. But a very large proportion of work-

houses would be. Labour is an excellent thing, but you have a too plentiful supply of it. Where does the shoe now?

THE TREATMENT OF PETROLEUM IN AMERICA

IN a long article describing the exhibit of the Standard Oil Company at Chicago contributed to the *American Gas Light Journal* by M'Kay, an account is given of the refining process to which petroleum is subjected, and also some information about the resulting products. The following is the description of the refining process:—From the crude oil storage tank the oil is pumped to the crude oil still, where it is gradually heated until the naphtha and burning oils are driven off by distillation, and, passing through the condenser and receiver, are collected in three tanks. The burning oil distillates are pumped to a large agitator, where they undergo chemical treatment (with alkali) to render them fit for consumption. The crude naphtha is re-distilled in a naphtha still, giving the various grades of gasoline and naphthas. The tar left after the first distillation is transferred to another still, where it is separated into light paraffin oil, heavy paraffin oil, and still cake, which remains in the still. The light distillate is used as fuel. The heavy oil is sent to the paraffin-wax press house, where it is chilled and pressed to remove the paraffin oil, leaving the wax cake remaining in the still as a final residue is used in the manufacture of electric light and battery carbons. The reduced still oil is used in the production of lubricating oils.

The Standard Oil Company does not make or sell "kerosene." Kerosene is a product of the distillation of coal; it is "coal oil." Petroleum oil is a variety of the same substance. It is incorrect to designate kerosene the illuminating oils produced by the distillation of petroleum. These oils are essentially petroleum distillates, or petroleum oils. There is no more common error than to speak of the oils used in houses as kerosene, yet it is extremely doubtful whether any kerosene is directly so designated, is purposely manufactured in the United States. The quality of burning oils differs according to the country to which it is sent. The fire test varies from 150° in the different States; some States specify, by law, the quality of the oils that may be sold for illumination. *Oils sent abroad are of a much lower general grade.* During distillation, colour, temperature and chemical tests, with time and personal experience govern the distribution of the distillates; the thoroughness of treatment of the illuminating oils in the agitator determines the purity and colour.

To return to the distillation of crude petroleum. This is illustrated by a series of cases containing products, duly showing the result of theoretically perfect fractional distillation of amounts of crude naphtha, burning oil, tar, and coke obtained from a barrel of crude oil. The central feature of the general exhibit is described as "a glass case containing a barrel of crude oil, as received from the pipe lines." The average specific gravity of this is not far from 45° B.; more than this amount (one barrel) is actually delivered from the pipe lines of the Standard Oil Company every second of the twenty-four hours of every day of the year. The breaking up of the crude oil is in the parts, 75 and 5, of burning oils, naphthas, lubricating oils, and tar and asphaltum respectively. The percentage denoting burning oils is exhibited further separated, as follows:—

Standard white 150° distillate, representing 29 per cent. of barrel of crude oil, before treatment with sulphuric acid.	
Standard white 120° distillate, representing 15% of barrel	
Headlight . 175° " " "	2%
Mineral seal . 300° " " "	1%
Water white . 150° " " "	12%
Standard white 110° " " "	10%
Water white . 120° " " "	3%
Water white . 110° " " "	3%

The above list shows how the enactment of State laws, prescribing colour and fire tests, enables the intelligent refiner to produce a maximum of the oil locally necessary or desirable. Headlight oil, its name implies, is used in the headlights of locomotives. Mineral seal is the oil used in lighting passenger railway coaches. In an accident, a lighted lamp burning this oil is overturned, the oil from the specially constructed reservoir will extinguish the lamp and prevent the spread of fire. This oil has a specific gravity of 36° B. Besides the above samples, showing the distillates produced by treatment with sulphuric acid and with soda in the agitators, there are found samples of the same oils, and of intermediate grades, after such treatment and purification. Water white is produced with more labour and more care than standard white, but the tests may be the same for both. The improvement in colour is given to a special trade.

10 per cent. representing crude naphthas is taken 13/4 light gasoline, and from this, in turn, are obtained redistilled gravities 90°, 88°, 87°, 86°, and 76° B. Also from the thas are taken the heavy naphtha distillate, and naphtha s—left in the still after the distillation is finished. From distillate come the redistilled naphthas, 58° to 63° B., and zed naphthas, of gravities 61°, 62°, 63°, 67½° to 76°.

case is given to specimens of products, in all stages of the e, from the 5 per cent. representing petroleum tar, or and cake. The heavy distillates from tar are treated with d, and yield paraffin oils and crude paraffin wax or crude nples of these, and of the light distillate, used for fuel, are o samples of hard refined wax, soft refined wax, crude scale, zone, red and diamond paraffin oils, foot's oil, gumstock or pressed oil, and still wax or wax tailings used in the paper o are shown petroleum cake for electric light carbons, and pitch or asphalt for paving and roofing. What is known raffin stock is melted in naphtha on lye, crystallized and pressed, yielding small crystals which melt at 116° F., and asis of chewing gum—sugar, gum, and flavouring extract other ingredients. Under the paraffin division should be seline compounds, which are carefully purified and filtered. A large case exhibits petroleum jellies or vaselines, cerates, oaps, and face paints.

per cent. of the original crude manufactured into lubricat- s no recognisable sub-divisions. Wagner states that a al oil for use as a lubricant must have the proper con- ust not harden, must not contain any mineral or organic evaporate and inflame at a high temperature, must show ion of paraffin under cold, and should have but a faint raffin oil that does not boil under 700° Fahr. is considered best lubricants for cylinders at high temperatures. Mineral y prepared, is used for the lubrication of watches. The rds the purchaser the widest conceivable choice in the lubricating oils; all grades, all prices, colours, and offered. The admixture of animal and vegetable fats is re of an undesirable adulteration, frequently practised.

reat bulk of the trade of the Standard Oil Company is in the ing oils, it follows that a lively interest is maintained in the nt of satisfactory appliances for the burning of the oil for the of light.

g feature of the exhibit is a cleverly erected pyramid of the east side of the section. This pyramid shows the total oil for the United States for one day—140,000 barrels in all. s are so painted that the lines of colour effectively aid the endeavour to compare the several volumes. The total pro- s divided up:—

nating oils .	105,000 barrels =	75 per cent. of total.
nating oils .	14,000 " =	10 " "
ha and fuel oi's	20,300 " =	14½ " "
.	700 " =	½ " "

al products being indicated by painting the barrels blue and and yellow, purple and white, and black, in the order n.

Legal Intelligence.

HIGH COURT OF JUSTICE.

QUEEN'S BENCH DIVISION.

efore Mr. Justice Charles and Mr. Justice Wright.)

LAILAW V. WILLSON.

e, an appeal from a decision of magistrates, raised a question portance under the Adulteration Acts, how far the fact of a f purity given to the seller of the commodity excuses him ecuted by the purchaser for adulteration. The purchaser, utor, complained that he had gone into the shop of the and asked for half a pound of lard, and that the lard delivered found to be adulterated with 7 per cent. of beef fat. The s, under section 25 of the Act of 1875, that the defendant, had purchased it from his vendor with a written warranty ticle was pure, and the question was whether the defence ed. Section 25 says that "if the defendant shall prove to tion of the justices that he had purchased the article as the bstance, nature, and quality as that demanded, and with a rranty to that effect, and that he had no reason to believe it shall be a defence to the charge of adulteration. In the e the defendant, the seller, produced the invoice he had ith the lard when he purchased it, and which at the top had

a sort of scroll containing the words "Kilvert's pure lard." The magistrates were of opinion that the invoice was a contract note which constituted a warranty within the meaning of the proviso, and so they dismissed the complaint. The complainant appealed.

The appeal was dismissed and the decision of the magistrates upheld.

Mr. Justice Charles, in giving judgment, said the defence raised was under section 25, and the contract under which the lard had been purchased by the defendant was for "pure lard," it being warranted as "Kilvert's pure lard." It was not said in terms, "We hereby warrant it as pure lard," but the words used imported a warranty and were in writing. In one of the cases cited, the warranty was only of "lard," and so was quite different from the present. In "Harris v. May," the contract being for the supply of new and pure milk, the Court thought there was no warranty of the milk supplied on the particular day. There was no statement in writing that the particular milk supplied on the day in question was pure. In the present case the words used did amount to a warranty of the purity of the whole quantity of lard supplied, and that it sustained the defence. The enactment did not require the use of the word "warranted."

Mr. Justice Wright concurred.

(Before the same Justices.)

EX PARTE SCHINDEROLLE.

In this case the applicant had been convicted for an offence against the 24th section of the Public Health (London) Act (54 and 55 Vict., c. 76) in allowing black smoke to issue from a chimney. That enactment is that a chimney—not in a private house—sending forth black smoke so as to be a nuisance, shall be a nuisance summarily dealt with under the Act. The defendant had a notice under the Act, and then there was a summons against him for allowing black smoke to be emitted so as to be a nuisance. The magistrate said, "Order for prohibition," and the conviction, as drawn up, was—for that the defendant, being the person by whose act a default, the nuisance, had arisen, being the occupier of the premises No. 95, Bermondsey New-road, and having been duly served with notice by the sanitary authority, and the vestry of the parish being satisfied that there was a nuisance, and requiring him to abate the nuisance caused by black smoke issuing from the chimney, and having made default in abating the nuisance, and it being adjudged that the nuisance still continued, that he pay a fine of 20s., &c.

Mr. Tickell, on the part of the defendant, now moved for a *certiorari* to bring up the conviction and the order for abatement of the nuisance, on the ground that they had been made without jurisdiction, the summons having been for one offence and the conviction for another. The summons was for allowing black smoke to issue from the chimney, and the conviction was for making default in obeying an order to abate the nuisance, in answer to which the defendant might have shown that the smoke complained of did not arise from his act or default.

The Court granted a rule *nisi* for a *certiorari*.

GREENWICH POLICE COURT.

AN OBNOXIOUS MANURE BUSINESS.

Last Monday, at the above court, before Mr. Kennedy, James Judd, sen., of Railway-arch, 492 (L. B. and S. C. Ry.), in Rotherhithe New-road, Rotherhithe, was summoned by the London County Council:—"For that he, while carrying on the business of a manure manufacturer, did not adopt such precautions and employ such means as were necessary to cause all offensive vapour or gas arising from animal matter to be conveyed into or through a furnace fire, or to be so condensed as to be effectually destroyed." Mr. Collman appeared to prosecute, and pointed out to the magistrate that he had power to deprive the defendant of his business. He seemed to be utterly careless of the way in which he carried on the business. The smell was very bad, and men had been taken ill and had had to leave their work. A witness named Marshall deposed that the smells were shocking, and had made him sick, giddy, and powerless. The same effect was produced upon a number of workmen. Captain Metcalfe and other witnesses also spoke of the smells, and previous convictions were proved against the defendant. Witnesses for the defence declared that they had noticed no offensive smells. Mr. Kennedy said the nuisance had become intolerable, and he should make an order to deprive the defendant of the right to carry on his business. He would also have to pay three guineas costs.

THE MARPLE SEWAGE SCHEME.—Last week Mr. Riensi Walton, inspector of the Local Government Board, held an inquiry into the application of the Marple Local Board at Marple for power to borrow the sum of £8,000 for works of sewerage outfall and filtration works and other purposes. Mr. Johnson, clerk, Mr. Bancroft, engineer for the proposed works, and Mr. Hodgkinson, chairman gave evidence. The application was unopposed, and the inspector proceeded to view the site of the works.

The World's Columbian Exposition.

FOREIGN INDUSTRIES AT CHICAGO.

(Specially Communicated.)

THE DEUTSCHE GOLD AND SILBER SCHEIDE-ANSTALT.

AMONG the numerous chemical exhibits in the German section at Chicago that of the above firm is most interesting, as it represents many more branches of chemical and metallurgical industries than its name implies. Under this title five separate but correlative industries are carried on. At Frankfort-on-the-Main, where the central office is situated, two departments are located, namely, the metallurgical works and the chemical and ceramic colour and enamel works. At Hoboken-les-Anvers the desilverising works are carried on. Metallurgical and mining works are to be found at Puerto-de-Mazarron, in Spain, and a quinine factory at Auerbach.

In the exhibit of this company (an illustration of which is given on the opposite page), samples of products of high quality are set forth and the various works represented. The large show-case, which is situated in the main aisle traversing and dividing the mining building from east to west, is entirely constructed of walnut with gold ornamentations, the chemicals, etc., manufactured by the concern and its branches being shown to the right and left in large glass cases, while the background is formed by a plastic and pictorial representation of the different establishments. Well executed models of the ceramic colour works and the central office in Frankfort-on-the-Main are shown in the centre and on the right. The desilverising establishment at Hoboken, near Antwerp, is mounted in the left foreground. To the left is seen in the background the Mediterranean port of

gold, apart from platinum and other precious metals. The silver which the company actually refines is about 9,000,000 ounces annually. Samples of these products are shown, as are also silver nitrate of silver, gold chloride, sulphate of copper, iron acetanilide, prussiates of potassium and sodium, phthalic acid chloride, chloride of sulphur, potassium cyanide and permanganate of potash. Of this last product some 2,000,000 ounces are produced annually at Auerbach, as well as Chinchonidine and Quinidine. Spanish mines argentiferous lead is worked and smelted, the being about 55,000,000 lbs. of silver-bearing lead, equivalent to 2,000,000 ounces of silver. The ore thus obtained is treated with other ores and supplies, at the desilverising works at Hoboken, was at these works that the Roessler and Edelmann desilverising process was first introduced, by means of which 67,000,000 lbs. of silver, 4,200,000 ounces of silver, and 5,000 ounces of gold are now produced.

The chemical department of this Company is represented in the exhibit by the Roessler and Hasslacher Chemical Company, of New York City, who are also separate chemical manufacturers, having a factory at Perth Amboy, N.J. The exhibit of this Company is represented by the illustration which we give below. The show case, which is composed of delicately tinted bricks, tiles, and enamel work, produced with the colours and enamels supplied by the Company. At the corners, the roof is surmounted by four bronze eagles bearing in their bills the trade mark of the company. The roof itself is supported by pilasters partially covered with white tiles, bearing on their faces handsome gilded signs referring to the products made by the firm; their specialities being chlorides, acetone, liquid bright gold, two large vases of which contribute strikingly to the brilliancy of the exhibit, platinum chloride, peroxide of hydrogen, which is made from sodium peroxide, this firm being an agent



Mazarron, in the Spanish province of Cartagena, with the silver-lead ore smelting works and mines of the Campana Metalurgica de Mazarron, the Spanish branch of the concern. While to the right the painting in the background represents the Bergstrasse in Odenwald, with the quinine factory at Auerbach and the ruin of the old castle of the same name.

To start with the head-quarters at Frankfort-on-the-Main, we have the metallurgical and chemical departments. In the former of these some idea of the extent of the business carried on can be gathered from the fact that during the past year the sales of silver amounted to over 19,000,000 ounces, and 200,000 ounces of

Oldbury Aluminium Company. Ceramic colours, fluxes, and oxides, such as oxides of cobalt, tin, manganese, and uranium, glaze, and enamel colours and lustres. The range of colours is very extensive, numbering about 600. Potassium cyanide of quality is shown in big glass cylinders containing large white crystals of 98/99% purity; as is likewise a number of chemicals, oxalates of potash, nitrite of soda, chromic acid, oxalic acid, of potash, phosphate of soda, sulphide of soda, zinc sulphate, and free sulphate of alumina. In conclusion, mention may also be made of the following products which are shown in this exhibit, and are on behalf of the central establishment:—Sal ammoniac, carbon

ia, naphthol, aniline salts, aniline oil, pure benzol, pure toluol, azol, nitrotoluol, toluidine, naphthylamine, naphthionate, para-diamine, toluidendiamine, metaphenylendiamine, amidoazopara and meta-nitraniline, and other articles for the Textile and Colours Industry.

CITY AND GUILDS OF LONDON INSTITUTE.

Annual report of the Examinations Department of the City and Guilds of London Institute, signed by Mr. G. Matthey, chairman of committee, and Sir Philip Magnus, superintendent of examinations, has just been issued, shows a considerable development in the undertaken by the Institute. The increased facilities now afforded in technology, as distinguished from pure science, cannot be shown than by the fact that the number of students in the affiliated to the Institute has increased from 2,500 in 1881 to 10,254 in 1893, whilst the number of candidates for the examination has increased from 895 to 10,254 during the same period. The report

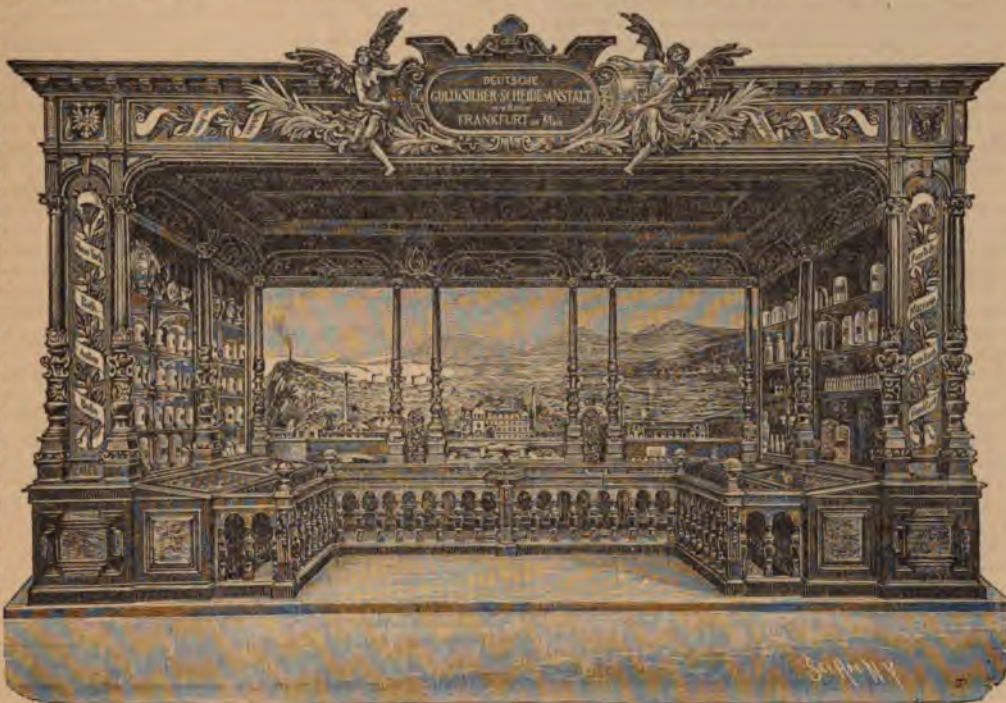
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ts grants

asses outside the metropolitan area, whilst continuing to the classes and to examine the students. It appears from the that, notwithstanding the withdrawal of grants on results, there diminution, as might have been expected, but an actual in the number of candidates. The improvements intro- this year into the mode of conducting the examinations a closer adaptation of the syllabuses to the require- of different localities, the division of subjects into following more nearly the principal branches of each and the addition of further practical tests. The institute has arranged to forward special reports to local centres on the work separate classes examined by the institute. The report gives tails of the number of classes and of students in attendance at erent centres of instruction throughout the country, and contains ete list of the London institutions in which technical classes are ld, including those at the Regent-street Polytechnic, the Gold- Institute, the People's Palace, and the Borough-road Poly- . The institute's registered classes are now found in all the d towns of Great Britain and Ireland, a list of which is given V. of the report, and examinations were this year held in India, outh Wales, and New Zealand, the number of centres of ion and examination having increased from 265 in 1892 in 1893. The work of the department is carried on by 77 nd 41 consultative examiners, all of whom are experts in their trades. The examinations embrace all the principal industries ountry, and range from such highly scientific subjects as electric and alkali manufacture to plumbers' work and dressmaking. nstitute is doing important work in endeavouring to raise the d of teaching in the various trade subjects in which examina-

tions are held. In order that a class may be registered by the institute, it must be managed by a responsible committee, which is required to submit to the institute for its approval the qualifications of the teachers employed; and the report states that in many instances "the refusal of the institute to recognise a teacher has led to the appointment of a more competent instructor." The extracts published from the reports of the examiners show that there has been a general improvement this year in the work sent up for examination. The percentage of failures in some subjects is still very large, but there is a satisfactory increase in the proportion of candidates who have passed the higher grades of the examinations.

The practical tests which the candidates are required to pass are carefully arranged with the view to the special branch of the trade in which they are severally engaged, and owing to the numerous sections into which the trades are now divided, the organization of these practical tests is attended with considerable difficulty. Thus, in boot and shoe manufacture a candidate may select any one of ten branches of the trade, in each of which separate tests are given, and in mechanical engineering a candidate may elect to be examined in the honours grade as a fitter, a turner, a patternmaker, or a draughtsman.

The practical tests are always held in connection with the written examination, and in many subjects form a necessary part of the qualification for a certificate. In addition to its other work, the institute awards certificates to teachers of public elementary schools who have regularly attended a course of instruction in manual training and have passed the required examinations. The number of teachers who came up for examination this year was 1,141, as compared with 615 in 1892. The percentage of failures has fallen from 42.6 to 33.5. The institute continues to restrict its examinations in manual



training to certificated teachers, and regards the education which such teachers receive in their ordinary normal course as a part of the necessary preparation for giving instruction in this subject. Next year examinations will be held under similar conditions in metal work, with the view of certifying teachers as competent to give instruction in this branch of manual training to pupils of higher grade schools. The report, of which we have given a short summary, affords abundant evidence that the City Guilds, through this department of their operations, are doing a very useful educational work, in the benefits of which every technical school, not only in London, but throughout the country, is enabled to participate. In the appendix to the report are given the names and places of education of the candidates who have taken the prizes offered by the institute. These consist of money prizes to the amount of £352, given by sixteen of the Livery Companies and of 85 silver and 133 bronze medals. A scheme for the inspection of technical classes by educational and trade experts has recently been issued by the institute, some particulars of which are given in the pages of the report.

SOCIETY OF CHEMICAL INDUSTRY.—London Section: The first meeting of this section for the 1893-94 session will be held on Monday, November 6th, at 7 p.m., in the rooms of the Chemical Society, Burlington House. The following papers are to be read:—"Spirit Assaying by Weight," by Mr. Scarisbrick; "The Estimation of Alizarine and Allied Colouring Matters," Mr. P. W. Dreaper. The chair will be taken by Mr. William Thorp, F.I.C.

THE MERSEY AND IRWELL JOINT COMMITTEE.

THE usual monthly meeting of this Committee was held at the offices, Mosley-street, Manchester, on Monday last, at 2-30 p.m., Sir John T. Hibbert, M.P., in the chair.

The CHAIRMAN, in moving the adoption of the Chief Inspector's report, said he had to express his regret at having been unable to attend the meetings of the Committee for so many months, but he need not explain to them the reason of his absence which was so well known to them. In fact, the duties to which he had had to attend had often been more distasteful than presiding over their Committee, which dealt with the unpleasant matter of sewage, would have been. Judging from the statements in public print, and also from what he had heard, there seemed to be an idea that the Committee had been proceeding slowly and not with as much activity as might have been expected from them, and he wished to say to the public and the different authorities they represented that so far very useful work had been done, and that the Committee had laid the foundation and sown the seed of what he hoped would produce very valuable fruit in the future. It was not to be expected that the difficulties which had been accumulating during some fifty or perhaps a hundred years could be overcome in two years. As it was, great progress had been made, as the next twelve months would no doubt show. With regard to solid polluting waters, great progress had been made, inasmuch as this form of pollution, in the shape of ashes and solids from mill lodges, had ceased entirely, without any proceedings being taken, showing that the offenders did desire to conform to the wishes of the Committee and the demands of public opinion. In dealing with sewage pollution the Committee, bearing in mind the difficulties encountered by Salford, had sought further powers from Parliament, and the past proceedings show that they acted wisely in so doing. Some people seemed to think the work was a very small one, but it appeared to him to be very large, and to be one of the most important undertaken by any local authority in the country. The population of the area which the committee had to deal with was over 2,000,000 and included seven county boroughs with a population of 1,148,000 persons, 11 non-county boroughs, 56 local boards, and nine rural sanitary authorities. The committee had to deal with the schemes of all these various authorities which alone was so great a task that it could not be expected to be carried out quickly and the progress which had been made showed that the confidence which had been reposed in the committee had been justly reposed, and should be continued. Since May, 1892, four Urban authorities had put works into operation; four were constructing works; six had had schemes sanctioned, 11 had submitted schemes to the Local Government Board, and where, as in 1892, 24 authorities had no scheme there was not one at the present time in that situation. In connection with liquid manufacturing pollution, out of the 734 manufacturers in the watershed, there were only 390 that wanted purification works, and he could not avoid saying that the majority of manufacturers had shown their willingness to meet the committee, and in only eight cases had this been the exception. He considered they were wise in their generation, as purification of the rivers would prove of more importance to them than anyone. He would not occupy their time any longer, but he wished to point out in conclusion that when all the schemes were completed the work of the committee would not be finished, they would then have to see that the works were properly carried on. (Hear, hear.) What was the good of having a magnificent sewage scheme if the effluent was not turned out in a proper state. There were places which were not turning out a good effluent, and in saying so he did not refer to any place in particular. The Committee would make it a duty to deal with large and small exactly in the same way, and he believed they would carry public opinion with them. He trusted that before another twelve months was over they would be in a position to point to good work done, and that before another two years elapsed the water which was to be used by the Manchester Ship Canal would be such as would be satisfactory to those who had to use it. He hoped that in their future work the committee would be as successful as they had been hitherto.

Alderman Thompson seconded the motion.

It was decided to send copies of the report of the Chief Inspector (Mr. R. A. Tatton) to every local authority in the watershed, to the president of the Local Government Board, and to the members of the Lancashire and Cheshire County Councils and constituent authorities.

REPORT OF THE CONSULTING SUB-COMMITTEE.

Mr. T. W. Killick, in presenting the following report, said the Consulting Sub-Committee have to report that they have considered the position of the undermentioned Local Authorities:—

Marple.—This Authority have not made satisfactory progress with their Sewage works. The Sub-Committee therefore recommend that proceedings be taken.

Kearsley.—In August last, this Authority was granted a three months' extension of time to proceed with the construction of the

intercepting sewers. The Sub-Committee, however, are not with the progress which has been made since then, and they recommend that proceedings be now taken.

Hollingworth.—Application has been made to the Local Government Board for borrowing powers for a Sewage scheme for this town. The pollution is small, and the Sub-Committee recommend an extension of time for three months be given them.

Middleton.—Mr. Tatton reports that a Local Government Enquiry into this Sewage scheme will probably be held on the 11th November inst. It appears that the Corporation have arranged for the land. The Sub-Committee therefore recommend an extension of time for one month be given them.

Gorton.—Mr. Tatton also reports that the contracts for this area are now being prepared, and will probably be let within a month. The Sub-Committee therefore recommend that an extension of this period be given them.

Macclesfield.—Since the Corporation obtained the confirmation of the Provisional Order for their sewage scheme, they have made no progress. The Sub-Committee therefore recommend that proceedings be now taken against them.

Audenshaw—Manchester.—A letter has been received from the Audenshaw Local Board, stating that they have now received the report from Messrs. Lomax upon the proposed joint scheme for the pollution of the Gore Brook. The Sub-Committee have considered the same, and they recommend that the summons against the Manchester be now issued, in order that the question of liability for the matter may be determined in open court.

Whitefield (Stand Lane District).—A Local Government Enquiry was held on the 27th October upon the proposed scheme for this District, and the Clerk presented a report upon the same to the meeting.

The recommendations of the report were adopted in all cases those of Marple and Whitefield, which, for reasons and stated satisfactory to the Committee, were adjourned respectively for six months and one month. In the latter case it was explained to the Committee that the present scheme would mean an additional £4. 10s. per head.

The Clerk (Mr. Hulton), in response to Mr. Killick, explained the position of the Committee in regard to Bury, and stated that the grace allowed them expired on the 1st ult., since when he had been in communication with their counsel (Mr. Sutton). The necessary summons would be issued, and the hearing of the case fixed for November 11th inst.

The question of the power of the Committee to compel Derby to stop polluting the streams which run into the area dealt with by the Joint Committee was referred to the Consulting Sub-Committee.

THE ADDITIONAL SUB-INSPECTOR.

Mr. Killick moved that in pursuance of the resolution passed at the last general meeting of the Joint-Committee, the Sub-Committee examine the applications for the appointment of an additional Inspector, and they recommend that Mr. Jephson, now Inspector of Rivers to the Salford Corporation, be appointed to the post, at a salary to commence with of £125 per annum, such appointment to date from the 1st November inst.—The motion was seconded and passed.

REPORT OF THE CHEMICAL SUB-COMMITTEE.

Alderman Walmsley presented the report of this Committee, showing that on the whole satisfactory progress was being made by the manufacturers. T. Boyd and Co., and J. Bright Bros., & Co., W. H. Wagstaffe and Co., were allowed three months to complete their works. Melland and Coward were given the same period to complete their Newton Heath tanks, and owing to the difficulties at their Manchester works, the matter was adjourned for a month. It was decided to inform Messrs. T. Barlow and Co. that application to the Local Government Board for permission to prosecute would be made unless considerable progress was made in their purifying plant at their December meeting of the Committee. Three months were given to complete their Middleton tanks. Several complaints have been made about the pollution from the works of R. Clay (Chemical) clerk was instructed to write and say that if steps to purify were not taken proceedings would be taken forthwith.

It was decided to invite forty-seven Bleachers to appear before the Committee on December 11th prox., at 11 o'clock a.m., to cause why proceedings should not be taken against them under the Mersey and Irwell Joint Committee Act, 1892. In answer to this, Alderman Thompson explained that under the Manchester sewage scheme, last week, 730 acres of the district were covered with the main sewer; 3,711 acres were being dealt with as possible, so that about 4,500 were in active progress. The remaining 8,000 acres they were behind with owing to the alarming illness of the city surveyor, who had been absent three months. Some of the land for this area had, however, been let. He did not like to make promises, but he had every reason to hope that they would be completed by the first week in December. The Committee then

Paper Makers' Column.

CHLORINE, BLEACHING POWDER, AND SODA.

CHLORINE.

ORDING to a report by Hasenclever in *Die Chemische Industrie*, researches have been made in two works in England: the object of obtaining chlorine from common salt and nitric acid. The process, which has already been described in these columns, at the end of this year be producing regularly five tons of bleach

at the Rhenania Works at Rheinau, near Mannheim, chlorine is produced as a commercial product, the process being patented in Germany. The chlorine gas is liquified by subjecting it to a pressure of 10 atmospheres, and is stored in this state in strong cast iron vessels of about 60 kilos. each. In this form it is sent into the market. Chlorine can be taken from these "bombs" in either the fluid or gaseous state, suitable valves being provided for this purpose. It is adapted to a great variety of purposes, and especially for bleaching fabrics.

In chemical works are also endeavouring to find suitable methods of producing chlorine by electrolysis. The Gesellschaft Elektron places upon the market more than a thousand tons of bleaching powder yearly, which is obtained by the electrolytic decomposition of potassium chloride. Further, an association under the technical direction of the Allgemeinen Elektricitäts-Gesellschaft of Berlin, continues a long series of researches, in a large soda and bleaching powder works on the electrolytic decomposition of common salt. The manufacturing process, it was said, was worked at first in Bitterfeld, near

Magdeburg. These attempts menace the bleaching powder works far more than soda works, because from 100 tons of common salt more than as much bleaching powder as soda is prepared. The yearly production of soda in Europe is about five or six times as great as the production of bleaching powder produced, and the sale of the latter is limited.

In Germany, the preparation of bleaching powder from Stassfurt potassium chloride and magnesium by the electrolytic method has changed to a great degree the position of the market. As the following table shows, there is now more bleaching powder exported than imported, and it appears very probable that when the newly projected electrolytic works are at work, the paper maker will soon have cheaper bleaching agents.

GERMAN IMPORTS AND EXPORTS OF BLEACHING POWDER.

Year.	Imports.	Exports.	Import Balance.	Export Balance.
	Tons.	Tons.		
1882	5,817	377	5,440	—
83	5,127	671	4,456	—
84	6,339	898	5,441	—
85	6,179	432	5,747	—
86	5,630	300	5,330	—
87	3,450	475	2,975	—
88	5,257	745	4,512	—
89	4,716	807	3,907	—
90	6,647	552	6,095	—
91	3,430	1,356	2,074	—
92	2,943	3,569	—	626

SODA.

Soda is also now being prepared by the electrolytic method, and this method threatens to completely abolish the Le Blanc process. The following table shows very clearly how this latter process is yielding to the newer ammonia soda.

In the past few years the following quantities of common salt have been decomposed for the production of soda:—

	1890.	1891.	1892.
	Tons.	Tons.	Tons.
Le Blanc Method....	602,769	567,863	519,563
Ammonia do.	252,260	278,528	304,897
	855,029	846,391	824,460

In Great Britain there are now eight ammonia soda works producing about 200,000 tons. The sale of soda in Germany has diminished in consequence of general bad trade. Its price also has gone down. The steady advance of the newer methods gives trouble to manufacturers, especially those employing Le Blanc's process, and it is because of this aspect of the present state of things that Chance's process for the recovery of sulphur from "soda waste" has not been universally adopted. Accordingly, up till now, 35,000 tons of pure marketable

sulphur are recovered in England; some thousands of tons at St. Gobain, in France; and about 1,500 tons in Hruschan, in Austria. In Germany, Chance's process has not been realised as a manufacturing operation on a commercial scale.

KINGZETT'S IMPROVED SULPHUR FUMIGATING CANDLES.

KINGZETT'S Sulphur Fumigating Candles have already been described in these columns. Our readers may remember that Mr. Kingzett's first patent consisted in the employment of a fuse moulded in the form of a cone, which was set in or on a mass of sulphur moulded in a suitably shaped vessel.

The fuse in question consisted of sulphur in admixture with chlorate or nitrate of potassium or sodium. Further investigation by Mr. Kingzett has led him to the discovery that such a fuse may be altogether dispensed with, and he now employs in its place a strip or ribbon of Brussels net or other similar material, which is first of all coated with a thin layer of sulphur by passage through a bath of that substance in a molten state. The strips of material thus coated with pure sulphur are afterwards cut up into suitable lengths, bent into circular form, and then set in the molten mass of sulphur forming the body of the candle. On application of a light to the prepared strip, which stands up above the surface of the body of the candle, it immediately takes fire and burns with great rapidity, the molten sulphur running down on to the surface of the candle and firing it immediately. Mr. Kingzett finds that many materials may be employed, such as muslin and tissue paper, but Brussels net is better than all others, because it gives very little ash, and the air spaces in the fabric which are opened immediately it is ignited, serve to feed the burning sulphur with a plentiful supply of atmospheric oxygen. We understand that Kingzett's sulphur candles, in the two forms that we have now described, have been adopted for use by many of the sanitary authorities in this country for the fumigation of infected rooms and dwellings, and they may be also very usefully employed for the extermination of insect pests. Further, they are suitable for use in many trades: thus, for example, by brewers for the fumigation of their vats and tuns in order to free them from troublesome secondary ferments; while again, they can be most usefully employed for the purification of slaughter-houses and butchers' store-rooms.

Reports of Companies.

THE ALUMINIUM COMPANY, LIMITED.

In their report for the 12 months ended June 30 the directors of this company state that the hopes they expressed in the last annual report, that a time of greater prosperity for the company was at hand, have not been disappointed. The Oldbury trading account shows a profit of £7,245, but this amount was not quite sufficient to meet all fixed charges at the head office, including debenture interest. The volume of the company's business has increased very rapidly during the last few months. The directors think this a suitable time to rearrange the capital, and at the extraordinary meeting a resolution will be proposed to write off £4. per share, thereby reducing the nominal value £1. per share. The directors believe that the present income of the company will be sufficient to meet all fixed charges, to provide adequately for depreciation, and to leave a balance for dividend on the reduced share capital.

SANTA ELENA NITRATE COMPANY.

The annual general meeting of this company was held at Winchester House, London, on Monday. Mr. A. R. Robertson presided, and, in moving the adoption of the report, observed that the result of the year's working was, on the whole, satisfactory, the net profit having amounted to £10,750. This had enabled the directors to reduce the company's liabilities and to strengthen its position. Owing to the opposition in Chili against the nitrate combination, the producers had decided not to renew the arrangement, which would, therefore, terminate next March. He hoped the Chilean Government would shortly realize the fact that in breaking up the combination they were taking a step which might ruin the smaller nitrate companies, which paid large sums to the Government every year. Their company alone paid the Chilean Government last year in royalties and duties over £30,000. The directors had made sales to a considerable extent at a good profit since the date of the report. Mr. George Bush seconded the motion, which was adopted.

Trade Notes.

THE FOUNDERS OF THE ALKALI TRADE.—It is intended to republish in one volume the articles which have already appeared in this *Journal*, under the title of **INDUSTRIAL CELEBRITIES**. The subscription price is 7s. 6d., post free, a form for which will be found in our advertisement pages.

PROTECTION OF WORKERS IN CHEMICAL FACTORIES.—It may interest our readers to know that the committees appointed by the Home Office to advise as to the adoption of special rules under the Factories Act for the protection of workers in chemical works and also those in lucifer match factories signed their reports on Saturday last. The particulars will doubtless be published shortly.

HAMBURG TO MANCHESTER BY WATER.—We have received a neat card which, anticipating the opening of the Manchester Ship Canal, shows the route of a new line of steamers which will be run regularly every week between Manchester and Hamburg, and *vice versa*, particulars concerning which can be obtained from Paul Günther, Hamburg, Germany.

THE POSITION OF SODIUM NITRATE.—According to the report of Messrs. Dobell and Co., Liverpool, owing to the restricted output under the nitrate combination, it seems as if stocks would run very small during the next agricultural season. Even though producers should increase their makes after the termination of the combination at the end of March, 1894, the production would not reach here before July. Taking these facts, in conjunction with the figures which follow, into consideration, purchasers will be able to make their own deductions as to the advisability of buying or not.

	1893.	1892.
Stocks on Sept. 30th, in U.K.	9,950	17,700
" " " on Continent....	60,000	134,550
	69,950	152,250
Quantity afloat to Europe	195,000	205,000
Total visible supply in tons.....	264,950	357,250

SHIP CANAL POLLUTION AT BARTON.—In connection with this matter, reference to which was made in these columns recently (No. 233, p. 259) the Ship Canal Company have addressed a letter to the Barton Rural Sanitary Authority stating that the Company have entered into an agreement with the Co-operative Wholesale Society for the whole of the refuse from the works and the excrement from the houses to enter into tanks and the clarified effluent to be turned into the water of the Ship Canal. The conveyance by the Company to the Society does not confer any rights of drainage whatever upon the Society. It provides that the Society will not use the land or any building thereon for any purpose so as to create a nuisance, and that they will not turn or discharge any refuse from their buildings or works in any direction or place any such refuse in any such position so that it may in time of flood or from any other cause pass into the Ship Canal or any watercourse having connection therewith. The Canal Company have not agreed to give any rights of drainage to the Society. The information given by Mr. Hooley was entirely erroneous. The Authority may safely rely upon the co-operation of the Canal Company in preventing the pollution of the Canal.

PENNY LECTURES ON CHEMISTRY.—At the University College, Liverpool, a series of lectures are being delivered on Mondays, at 7.30 p.m., by Dr. Charles A. Kohn. These lectures deal with organic chemistry in relation to everyday industries, and began on October 16th; the first being on "Petroleum," dealing with its occurrence in Pennsylvania and the Caucasus, the boring of wells, transport and storage of the crude oil, refining and application of the various products for lighting, heating, and lubricating, and the Scotch paraffin industry. The second lecture was on "Alcohols," and treated of fermentation, preparation and properties of absolute alcohol, methylated spirits, the production of wines, beer and spirits, the condensation of the carbon dioxide obtained in the fermentation process and the properties of the condensed gas. The third lecture was on "Fats and Oils," and the fourth to be delivered on November 6th, will be devoted to "Soap." The fee for the course is six shillings; but working men will be admitted to each of the above courses at a charge of tenpence for the course, or twopence for a single lecture, on producing a form of application signed by himself and by his employer, certifying that he is an apprentice or workman in regular employment, and in receipt of weekly wages. Blank forms of application can be obtained at the Chemical Laboratories, Brownlow-street, at the Registrar's Office, Brownlow Hill, from Mr. J. Fox, Secretary to the Working-Men's Committee, 81, Selbourne-street, and at many of the works.

Market Reports.

MISCELLANEOUS CHEMICAL MARKET.

The demand for alkalis and bleaching powder generally is more active, and with the limited output of these articles, prices are well maintained. For spot and early deliveries, prices of caustic soda are as follows: f.o.b. Tyne, 77%, £12.; f.o.b. Liverpool, 74%, £11. 10s.; 70%, £10. 15s.; 60%, £9. 15s.; cream, 60%, £9. 10s., 10-ton lots and upwards. Bleaching powder £8. 5s., f.o.r. makers' works, and £8. 10s. to £8. 15s. f.o.b. Chlorate of potash, makers' price, is 8½d., but there are re-sellers at 8¼d. Soda ash of Leblanc make is extremely scarce, owing to general stoppage of plant, but ammonia alkali, 58%, is in ample supply to meet all requirements, and price of the latter is £3. 10s., bags, f.o.r. The active competition of makers still continues in this article, and sales are being made over 1894 at and below £3. 7s. 6d. per ton, makers' works. Sulphate of copper is in moderate request, and price firm at £16. to £16. 10s. f.o.b. Recovered sulphur still moves slowly, and without alteration in price, at £4. per ton f.o.r. There is a fairly active demand for supplies of vitriol and muriatic acid at normal prices. Acetates of lime continue firm: brown at £7., and grey £11. per ton, at usual points of delivery. Acetate of lead in all grades remains firm in price. In acetate of soda there is no change at present. Acetic acids are dearer. In potash, caustic and carbonate, a fair amount of business is being done, both for prompt and forward delivery, at full market rates. Yellow prussiate of potash 8¼d. per lb. Oxalic acid 3¼d. nett per lb. Bichromates moving slowly at conventional prices. Sulphocyanides dull. Prussiate of soda quiet at 6½d. per lb.

TAR AND AMMONIA PRODUCTS.

The tar products market remains in much the same condition as reported last week. 90's benzol is quoted at 1s. 6d., and 50/90's 1s. 7d. to 1s. 7½d., f.o.b. London, 1d. or 2d. less in the provinces. The demand for creosote oil is now much easier than it was a week or two ago, and consequently prices show a downward tendency. Anthracene is without change, and there is not much movement to record in pitch.

The sulphate of ammonia market, although still in a low key, shows a few symptoms of steadiness, and if we have not absolutely reached it, we are not far off the lowest point. Quotations are £12. 10s. to £12. 11s. 3d. Leith, Liverpool, and Hull, while Beckton is asking £12. 12s. 6d. for prompt, London outside makes going at the same figure. These are prices easily obtained by manufacturers of standing, and if speculators name anything less it is simply bravado, and means nothing, as they cannot buy thereat, so that makers should be on their guard or they will suffer.

REPORT ON MANURE MATERIAL.

The market continues rather quiet, with prices for the most part unchanged for nitrogenous material, but with some improvement for phosphates. Continent continues to buy 75/80% Florida rock at 8¾d. per unit between Havre and Hamburg, and at 9d. per unit Baltic or Mediterranean. It is doubtful whether anything under 8¾d. would be accepted now for cargoes to good United Kingdom ports. Peace River and South Carolina rocks are unchanged. After sales of two cargoes of River Plate bones at £4. 11s. 3d., sellers are now asking more money, and about £4. 15s. would have to be paid, October-November shipments. Crushed Calcutta bones offer at £4. 15s. ex quay Liverpool, November-December steamer shipment, and crushed Kurrachee's, January-February (1894) steamer shipment, at £4. 17s. 6d. £4. 17s. 6d. required for Bombay bone meal, fair average quality, November-December steamer shipment. Nitrate of soda is unchanged; on spot there are sellers at 9s. 1½d. to 9s. 3d. per cwt., according to quantity and quality. Due cargoes are worth about 8s. 11d. per cwt., and October-November shipment 9s. 1½d. We do not hear of any business in miscellaneous nitrogenous material.

WEST OF SCOTLAND CHEMICALS.

GLASGOW, TUESDAY.

There are a few not very important changes on the general market, but, on the whole, no solid improvement, dulness and total want of speculative business being the rule. Caustic soda is rather firmer, owing to restrictions on the Lancashire output. Bleaching powder is still easier, being now obtainable at £7. 15s. Soda crystals also are down a fraction, and bichromate of potash and bichromate of soda,

upheld at the old prices by the combination of Scotch makers, in very limited request.

al oil and paraffin products continue firm for the most part, varieties are maintained at a maximum. Burning oil is quite a gallon to the good, over the contract terms ruling at the commencement of the season in August, but it is not expected that the value will be long maintained. Paraffin spirit is also higher, and wax, being in large demand by the candlemakers just very firm, and rather dearer in second hands.

ate of ammonia is cheaper, £12. 10s. having been taken for but the real value is probably still a fraction higher. There is no business reported.

prices current are:—Soda crystals £2. 8s. 9d. to £2. 12s. 6d. one; soda ash £3. 17s. 6d. nett, Tyne; white alkali 48/52° s. to £5. 5s. nett, Tyne; alum in lump £5. nett. r; caustic soda, white, 74°, £12. 0s., 70/72° £11., £10., and cream 60/62° £9. 15s., all nett, Liverpool; g powder £7. 15s., nett Tyne; saltcake, 22s. 6d.; English refined, £30., and boracic acid, £37. 10s. nett, r; bicarbonate of soda, 5-cwt. casks, £6. 15s., and 1 sks £7. less 2½%, Liverpool; bichromate of potash, 4½d. r Scotch and English deliveries (for export, 4½d. nett Glasgow); bichromate of soda, 3½d. nett, for Scotch and English s (for export, 3½d. nett, f.o.b. Glasgow); chlorate of potash, s 5%, Liverpool; nitrate of soda, 9s. 3d.; sulphate of ammonia, s. to £12. 11s. 3d. prompt, f.o.b. Leith; sal ammoniac, first and white, £37. and £35. less 2½% any port; sulphate of copper, s. less 5% Liverpool; paraffin scale, hard and soft, 1½d. per lb.; wax 120° semi-refined 2½d.; paraffin spirit (naphtha) 4½d. to gallon; paraffin oil, burning, standard No. 1 grade, 5¼d. per t works, for Scotch buyers (English sales ½d. to ¾d. lower); lubricating) 865° £4. 7s. 6d., 885° £4. to £5. 10s., and ° £4. 17s. 6d. to £6. Week's imports of raw sugar at k were 7,400 bags and 9,101 baskets.

TYNE CHEMICAL REPORT.

TUESDAY.

icals steady, there has been a rather better demand for caustic d stock on the Tyne is very low, £10. and £10. 5s. is now r 70%, and £11. 10s. to £12. for 76/77%. Sulphur extremely and makers now quote £4. 5s. to £4. 7s. 6d. per ton. Other s quiet.

hing powder, softs, £8. per ton, nett; hards, £8 5s. per ustic soda, 76/77%, £11. 15s. per ton, 70%, £10. 5s. per ton; d sulphur, 2 cwt. bags, £4. 5s. per ton; soda ash, 3. 15s. per ton, 52%, £4. 2s. 6d. per ton, 56%, £4. 10s. per lkalí, 36%, £3. per ton; white alkali, 48%, £4. 10s. per 6, £4. 15s. per ton, 52%, £5. per ton; hyposulphite of soda, in casks, £7. per ton, ditto, in 1 cwt. kegs, £7. 15s. per ton; of soda, 75° Tw., £2. 15s. per ton, 100° Tw., £3. per Tw., £3. 17s. 6d. per ton; soda crystals, in casks, £2. 10s. a gross weight, in 2 cwt. bags, £2. 10s. per ton nett chlorate of potash, 8½d. per lb. less 6%; pearl hardening, ton nett; pure white sulphate of alumina, £4. 2s. 6d. per ton; xe, £7. 10s. per ton; chloride of barium, £7. 10s. per ton; te of alumina, £28. 15s. per ton nett; aluminate of soda, s. per ton nett; in 5 ton lots, £28. 10s.; hydrate of barium, r ton nett.

Durham salt is quoted at 9s. 6d. per ton f.o.b. Tees, and is emand.

—Trade is only quiet, there being a lull in the demand until t of any conference between the coal owners and the miners in llands. Northumbrian coal is steady at 14s. per ton; second 6, 12s. 6d. to 13s.; small steam, 6s. to 6s. 6d.; gas coal in emand, price unaltered; coke firm at 15s. 6d. and 16s. per ton.

THE METAL MARKETS.

DON, WEDNESDAY.—Pig iron dull. Scotch warrants closed 2½d., Middlesbrough 34s. 6d. cash, and hematite 44s. 6d. steady; Chili bars, G.O.B.'s and G.M.B.'s closed at £42. 2s. 6d. 10s. cash, and £42. 12s. 6d. to £43. three months. Tin, Straits closed at £76. 17s. 6d. to £77. 5s. cash, and £77. 10s. 17s. 6d. three months; Australian, £77. 7s. 6d. English £82. Lead, firmer: Spanish, £9. 13s. 9d. to £9. 15s.; £9. 15s. to £9. 17s. 6d. Silesian spelter: Ordinary, s. to £16. 17s. 6d. Nickel, 1s. 7½d. Antimony, £37. 10s. ver: First hands, £6. 7s. 6d. Copper shares, quiet: Cape, 1½ Capiapo, 1½ to 1¾. Libiola, 2¾ to 3. Mason and Barry, ¾. Rio Tinto, 14½ to 14¾. Tharsis, 4 to 5½.

WOLVERHAMPTON, WEDNESDAY.—There was a more cheerful tone on 'Change this afternoon, for the possibility of a settlement of the coal strike seems less remote, and it is felt that this is the one thing needful to ensure a good winter trade. Meanwhile prices keep firm, but makers declare that at the present prices of puddled bars and other materials no one can sell common bars at a profit at £5. 15s. Staffordshire tank plates are quoted £7., but are still subject to severe competition from the North of England. Northampton pigs 45s.

GLASGOW, WEDNESDAY.—Market steady, with small business. Scotch done at 42s. 3½d. cash, also at 42s. 5½d. one month; closing with buyers at 42s. 3½d. cash, sellers ask 42s. 4d. Cleveland done at 34s. 6d. cash; closing with buyers at 34s. 6d. cash, sellers ask 34s. 6½d. Cumberland hematite closes with buyers at 44s. 6d. cash, sellers ask 44s. 7d. Middlesbrough hematite closes with buyers at 43s. 3d., sellers ask 43s. 6d. Copper closes with buyers at £42. 1s. 3d. cash, sellers ask 5s. more.

LIVERPOOL OIL AND COLOUR MARKET.

WEDNESDAY.

OILS.—Palm oil continues quiet. Prices are easier, and resulted during the week in a little business which seems likely to increase, as what is on offer does not lack purchasers. Lagos is quoted £24. 10s., spot and to arrive, Accra, £23. to £23. 5s. Olive continues much the same both in price and tone, with a moderate request. Linseed is easier somewhat, Liverpool makes in export casks being now steady at 22s to 22s. 6d. per cwt. Cottonseed is likewise lower in price, and the market is quiet, Liverpool refined being quoted 22s. 3d. to 23s. 6d. per cwt. Castor oil is steady; good seconds Calcutta move pretty freely at 23½d. First pressure French is firm at 23½d. per lb. Tallow is steady in price, and the enquiry is moderately good. Stocks are small. Resin is firmer, and 3s. 9d. is now lowest price for common, and holders are firm in all grades. Spirits of turpentine are steady, but prices are somewhat easier at 22s. 6d. to 22s. 9d. per cwt. Petroleum is more inquired for, with American refined at 4¼d. to 5¼d.; Russian refined 3¼d. per gallon.

COLOURS are steady without alteration in prices. Ochres: Oxfordshire, common, £10., medium, £12., best, £15.; Derbyshire, common, 40s.; medium, 50s., best, 60s.; Welsh, best, 70s., seconds, 50s., and common, 18s.; Irish, Devonshire, 40s. to 45s.; French, J.C., 55s. to 60s.; M.C., 65s. to 67s. 6d. Umber: Turkish quiet; Devonshire, 50s. to 55s. White lead, red lead, and oxide of zinc unchanged. Venetian red, £6. 10s. to £10. Cobalt: Prepared oxide, 9s. 9d.; black, 9s.; blue, 6s. Zaffres: No. 1, 3s. 6d.; No. 2, 2s. 6d. Oxide of iron: Common, £6.; medium, £10.; finest, £20. Zinc oxide, £23. to £25.

HULL PAINT, OIL, AND COLOUR REPORT.

TUESDAY.

OILS.—The trade generally here is on the improve, and it is commonly acknowledged that the bottom has been touched—only the resumption of coal exports is needed to give an all-round satisfaction. The oil trade just now is between seasons, and nothing striking is expected. The exports are, indeed, very poor, buyers holding off until the markets are more settled. A feature of the week is an import of 922 cwt. of tallow; also the arrival of a tank steamer with a large cargo of petroleum from America. Linseed oil has been dull, especially in forward positions. Spot closes steady at 20s. to 20s. 1½d. naked; first half November, 19s. 9d.; November-December, offer at 19s. 3d.; January-April, 19s. accepted; May-August, done at 19s. 6d. Boiled and refined from 1s. to 2s. per cwt., extra naked, casks 17s. 6d., and ordinary barrels 22s. 6d. per ton extra. Export for the week ending 24th ult, 56 tons. Refined cotton on the spot has declined about 12s. 6d. per ton, closing with sellers at 20s. 3d. naked; November still quoted 19s. 3d.; and December-April steady at 18s. 6d. Old crude on the spot, 18s. naked; and new, 18s. 4½d. Export for week, 91 tons. Rape oil remains dull as previously quoted. Coast cod oil firm at £17. 10s. to £19. per ton. Herring oil, £16. 10s. Sod oil, £15. to £17. Pine oil, £7. per ton. Anti-friction grease from £6. Engine oil, 1s. 3d. to 1s. 9d. per gallon. Cylinder oil from 1s. to 2s. per gallon. Tar oils continue scarce.

CAKES.—The demand is moderate for all kinds for the time of year, the continued open weather having not been reckoned with by speculators. Linseed cakes steady: 95% pure, £8. 12s. 6d. to £8. 15s.; ordinary, £7. 5s. to £7. 10s.; Russians, £8. 10s. Cotton cakes slow. Best makes, spot £5. 10s.; November-April, £4. 15s. Rape cakes: Black Sea £4 7s. 6d., East India £4. 15s. Oil feed cakes, £5. 12s. 6d.

PAINTS.—This trade continues fairly good. The exports, however, for paints and chemicals are not equal to a year ago, the figures being for the former 465 packages, against 491 packages a year ago; and for the latter 1,589 packages, against 1,761 packages; the prices

being:—Oxide of iron, dry, £9. to £18.; Venetian red, £6. to £10.; oxide of zinc, £22. 10s. per ton. Ready mixed paints, 28s. Common black varnish, £5. 10s. per ton in barrels free. Oak varnish from 6s. per gallon.

New Companies.

Hill Bros. and Company, Limited.—CAPITAL £2,500. in shares of £1. each. This company has been formed to acquire the business formerly carried on by Hill Bros. and Company, and to carry on the business of manufacturers of chemicals and chemical merchants.

McKenna and Company, Limited.—CAPITAL £15,000. in shares of £10. each. This company has been formed to enter into an agreement with a view of taking over the business of H. B. McKenna and Company, and to trade as oil refiners and manufacturers, and vendors of chemicals, oils, paints, and varnishes, &c. The subscribers to the memorandum of association are:—F. Duncan, 5, Underhill-road, Dulwich, traveller; T. Sellars, 35, New Broad-street, London, E.C., land agent; W. Duncan, 5, Underhill-road, Dulwich, traveller; E. G. Cranfield, 182, Royal Mint Square, London, E., clerk; J. E. T. Woods, 16, Eastlake-road, Brixton, engineer; A. J. Campion, 3, Devonshire-terrace, London, S.E.; H. K. Spark, Broad Green, London, W., clerk.

Peat Industries Syndicate, Limited.—CAPITAL £35,000. This company has been formed to purchase British and foreign patents connected with the use of peat and production of substances therefrom. The subscribers to the memorandum of association are:—J. Burke, 35, Queen Victoria-street, London, E.C., gentleman; A. Turner, 35, Queen Victoria-street, London, E.C., secretary; J. W. Ridout, 35, Queen Victoria-street, London, E.C., clerk; F. W. Lord, 60, Watling-street, London, E.C., chartered accountant; F. Goodwin, 60, Watling-street, London, E.C., clerk; W. L. Cooper, 5, Queen Victoria-street, London, E.C., solicitor; P. L. Cooper, 5, Queen Victoria-street, London, E.C., accountant.

The Patent List.

This list is compiled from Official sources in the Manchester Technical Laboratory, under the immediate supervision of George E. Davis and Alfred R. Davis, who report professionally upon the value of Chemical Patents.

APPLICATIONS FOR ENGLISH LETTERS PATENT.

Improvements in Lucifer Matches. F. J. Warrington. 19,380. October 16.
Manufacture of Barium, Calcium, Potassium and Sodium. W. Mills. 19,388. October 16.
Bleaching Rags by Bisulphites for Paper-Making. R. N. Redmayne. 19,396. October 16.
Rendering Coke Non-Hygroscopic, etc. N. G. Kimberley. 19,426. October 16.
Improved Protective Paint. T. Cohn. 19,444. October 16.
Improvements in Soaps. J. P. F. Field. 19,475. October 17.
Improved Sludge Valve. W. Birch. 19,482. October 17.
Liquid-Fuel Burning Apparatus. H. Lanceley and R. H. Lanceley. 19,502. October 17.
Air Propeller. D. F. Phelan. 19,510. October 17.

Smoke-Consuming Fuel and Economising Apparatus. E. J. Oates and L. Binns. 19,513. October 17.
Air-Drying Apparatus. J. W. T. Cadett and W. Neall. 19,519. October 17.
Carburetted Gas. F. W. Clark. 19,520. October 17.
Gas-Producing Apparatus. A. Kitson. 19,521. October 17.
Utilising Acid Sulphates of Soda. R. E. Chatfield. 19,430. October 17.
Apparatus for the Electrolytical Decomposition of Salt Solutions. C. Kellner. 19,542. October 17.
Aluminium Alloy. R. I. Roman. 19,543. October 17.
Improvements in the Precipitation of Sewage, and Precipitating and Filtering Apparatus. F. P. Candy. 19,560. October 18.
Reducing Sulphurated Ores into Oxides and Sulphur. L. Bemelman. 19,605. October 18.
Antiseptics. H. E. Newton. 19,622. October 18.
Colouring Matters. H. E. Newton. 19,623. October 18.
Production of Carbon Tetrachloride. A. Muller and H. Dubois. 19,668. October 18.
Improved Construction of Ammonia Apparatus. G. E. Davis. 19,690. October 18.
Dust Collectors. P. Turner. 19,686. October 19.
Purifying and Refining China Clay. W. W. R. Nicholls and R. C. Dalrymple. 19,699. October 19.
Manufacture of Fire Clay. L. Jones. 19,703. October 19.
Cement from Chance or Le Blanc Alkali Waste. B. K. Rigby, F.A. Remington, and A. Cooper. 19,705. October 19.
Flux and Solder for Aluminium. R. J. Crawley. 19,716. October 19.
Purification of Sewage, etc. G. E. Davis. 19,719. October 19.
Manufacture of Soap. M. Baerlein. 19,737. October 20.
Compositions. M. Baerlein. 19,732. October 20.
Oil-Feeding Apparatus for Boiler Furnaces. F. L. Parkinson. 19,738. October 20.
Sterilizing or Disinfecting Liquids. J. H. W. Ortmann and C. W. C. Herbs. 19,760. October 20.
Disinfecting Apparatus. E. Hérisse. 19,788. October 20.
Electrolytic Cells. F. Hurter, H. Auer, and E. K. Muspratt. 19,791. October 20.
Boiler Covering Composition. A. J. Boulton. 19,799. October 20.
Improvements in Refrigerating Apparatus. F. N. Mackay. 19,801. October 20.
Manufacture of Substances such as Bleaching Powder. M. Guthrie. 19,806. October 20.
Bleaching Fibrous Materials. C. G. Hagemann. 19,807. October 20.
Supplying Liquid-Fuel and Air to Furnaces. C. E. Hall. 19,821. October 21.
Air-Propelling and Moistening Apparatus. O. Hoffmann. 19,825. October 21.
Improved Compound for the Purification of Sewage. C. A. Burghardt. 19,827. October 21.
Improved Hydraulic Oil Press. Greenwood & Batley, Ltd., and H. Lambert. 19,864. October 21.
Improved Filters. H. H. Lake. 19,873. October 21.
Colouring Matters. R. Vidal. 19,880. October 21.

Gazette Notices.

PARTNERSHIPS DISSOLVED.

S. L. HOWARD, W. D. HOWARD, D. HOWARD, T. HOWARD, J. HODGKIN, A. U. HOWARD and D. L. HOWARD, manufacturing chemists, under the style of Howards and Sons, Stratford, London, E.C., and of Hopkin and Williams Cross-street, Hatton Garden, E.C., and Wandsworth, S.W.; so far as regards J. Hodgkin.

C. F. C. HOLE, and W. J. Hodgson, chemical manufacturers and mill furnishers under the style of the Central Chemical Co., Nottingham.

R. PERCY and W. M'LEAN HENDERSON, india rubber and gutta-percha manufacturers, Manchester and Salford, under the style of William Brown and Co., and the Victoria Gutta-percha Co.

BANKRUPTCY ACTS, 1883 and 1890.

Receiving Order.

JOHNSON, SAMUEL, Cardiff, salt merchant.

IMPORTS OF CHEMICAL PRODUCTS

AT

THE PRINCIPAL PORTS OF THE UNITED KINGDOM.

LONDON.

Week ending October 21st.

Acetic Acid—

Holland, 5 pkgs. F. Stahlschmidt & Co.
" 124 A. & M. Zimmermann
Germany, 5 H. Lambert
Holland, 17 J. Owen

Alkali—

France, 470 c. Arnati & Harrison

Alum—

Germany, 13 pkgs. Ohlenschlager Brs.

Antimony—

Germany, 15 t. B. & N. Whvs. Co., Ltd.
" 1 B. & F. Wf. Co., Ltd.
France, 150 J. Bamber
Portugal, 50 "

Arsenic—

Germany, 10 pkgs. L. & I. D. Jt. Co.

Asbestos—

Holland, £10 W. H. Carey & Sons
Belgium, 8 T. Palmer

Barytes—

Holland, 325 cks. A. Zumbeck & Co.
Belgium, 45 D. Storer & Sons
" 44 J. L. Lyon & Co.
" 25 brls. D. C. Thomas & Sons

Carbonic Acid Gas—

Holland, 25 pkgs. Volcanic Aération Co.

Castor Oil—

France, 12 brls. Beresford & Co.
" 12 F. V. Smythe & Co.
Belgium, 30 Burrell & Co.
" 86 pkgs. Fuerst Brs.

Caoutchouc—

Cape, 22 c. L. & I. D. Jt. Co.
Zanzibar, 58 "

Bleaching Powder—

Holland, 35 pkgs. H. Wallace & Co.

France, 11 Smith, Sundius & Co.
E. Indies, 50 Butler's Wf., Ltd.
S. Russia, 6 L. & I. D. Jt. Co.

E. Indies, 715 Lewis & Peat
Zanzibar, 9 Stichel Brs.
Grenada, 46 Major & Field
" 3 Prop. Bull Wf.

Carbonic Acid Gas—

Holland, 25 pkgs. Volcanic Aération Co.

Castor Oil—

France, 12 brls. Beresford & Co.
" 12 F. V. Smythe & Co.
Belgium, 30 Burrell & Co.
" 86 pkgs. Fuerst Brs.

Caustic Soda—

Holland, 105 c. Beresford & Co.

Chemicals (otherwise undesignated)

Holland, 45 pkgs. A. & M. Zimmermann
Germany, 3 H. Boys
Norway, 12 A. Hughes
U. States, 25 S. Lambert & Co.
Germany, 3 £10 L. & I. D. Jt. Co.
Holland, 10 G. Rabe & Co.
France, 6 T. H. Lee
Germany, 11 Domeier & Co.
" 2 Philipps & Green
" 32 T. H. Lee
" 128 A. & M. Zimmermann

Cream of Tartar—

U. States, 20 pkgs. L. & I. D. Jt. Co.
France, 10 F. C. Derrin & Co.
" 10 M. Ashby Ltd.

Holland, 24	Middleton & Co.	Manure—	Germany, 42 t.	Perkins & Homer	Belgium, 28	Colthurst & Harding	Myrabolams	Bombay, 237 bgs.	E. D. Sassoon & Co.	
Spain, 100	J. T. Morton	Methyl Alcohol—	Germany, 4 dms.	Elkan & Co.	Germany, 25	H. Lambert	"	1,905	D. Sassoon & Co.	
France, 30	W. C. Bacon & Co.	Mica—	Adelaide, £610	Magee, Taylor, & Co.	Holland, 14	G. Farmiloe & Sons	Orchella	Rotterdam, 160 bgs.	Brown, Geveke & Co.	
"	H. Johnson & Sons	Ochre—	Holland, 11 pkgs.	Phillipps & Graves	U. States, 12 brls.	Forster & Gregory	Saffron	Valencia, 4 cs.		
"	Grimwade, Ridley, & Co.	"	Germany, 3 cks.	Pickford & Co.	Holland, 50	M. Ashby, Ltd.	Sumac	Barcelona, 100 bgs.		
"	B. & F. Wf. Co. Ltd.	Paraffin Wax—	A. Turkey, 30 brls.	L. & I. D. Jt. Co.	Germany, 25 cks.	F. Engor	Farina—	Fiume, 310 bgs.		
Dyestuffs—		"	U. States, 1,948 brls.	J. H. Usmar & Co.	Zinc Sulphate—	Grosscurth & Luboldt	Trieste, 60	Hamburg, 100	Brown, Geveke & Co.	
Aniline	7 pkgs.	G. Rahn & Co.					Flux Skimmings—	Rotterdam, 23 cks.		
Annatto	4 pkgs.	B. & F. Wf. Co. Ltd.					Glucose	New York, 1,350 brls.		
Cochineal	49 pkgs.	L. & I. D. Jt. Co.					Hamburg, 100 cks.	50 kgs.		
Canaries, 9	Lewis & Peat						Iodine—	Valparaiso, 101 brls.	W. & J. Lockett	
"	Johnson, Hicks, & Co.						12	A Gibbs & Sons		
"	Kuhner, Henderson & Co.						Iron Oxide—	Trieste, 14 cks.		
"	Sperling & Williams						Manganese—	Kobe, 350 t.		
Extracts	63 pkgs.	Prop. Chamblin's Wf. Tegner, Price & Co.					Valparaiso, 51	Coquimbo, 2 cs.		
Denmark, 2	Union L. Co. Ltd.						Hamburg, 2 cs.	Mineral White—	Trieste, 100 bgs.	T. Pienisi
France, 50	A. J. Humphrey						100	Nitrate—	Rotterdam, 4 cks.	
Austria, 400	R. J. Fullwood & Bland						55 cks.	Ochre—	Rouen, 55 cks.	Co-op. W'sale Society, Ltd.
Denmark, 12	Carey & Sons						50 bgs.	Paint—	New York, 40 brls.	Anglo-American Oil Co.
France, 72	Boucher, Mortimore & Co.						Paraffin Scale—	Philadelphia, 235 brls.		
"	535						Phosphate—	Montreal, 60 t.	British Phosphate Co.	
Gambler	E. Indies, 2,691 pkgs.	Adamson, Gilfillan & Co.					"	492	Phosphate Lime Co.	
"	607	L. & I. D. Jt. Co.					Dunkirk, 500 bgs.	Pitch—	Antwerp, 3 cks.	
"	429	Leach & Co.					Plumbago—	Genoa, 100 bgs.	G. Huntriss & Co.	
Indigo	E. Indies, 65 cts.	L. & I. D. Jt. Co.					Potash—	Rouen, 51 cks.	Co-op. W'sale Society, Ltd.	
"	40	Croysdale & Co.					Hamburg, 50	Pyrites—	Huelva, 1,983 t.	Beauford & Co.
Myrabolams	E. Indies, 337 pkgs.	J. P. Alpe & Co.					Rosin—	New York, 1,491 brls.		
"	472	H. A. Litchfield & Co.					Saltpetre—	Hamburg, 200 kgs.	35 brls.	
"	1,200	A. Hagan					Calcutta, 970 bgs.	Silica—	Hamburg, 219 bgs.	
Orchella	E. Indies, 4 pkgs.	L. & I. D. Jt. Co.					"	"	"	
Safflower	E. Indies, 22 pkgs.	Prop. Brook's Wf.					Soap—	Zante, 1 bx.		
Sumac	Italy, 400 pkgs.	Beresford & Co.					Bari, 170 cs.	N. Orleans, 932 brls.		
"	100	J. Graves					"	Marseilles, 76	70 bxs.	
"	200	G. D. Jennings & Co.					"	Boston, 2	Evans, Son & Co.	
"	500	J. Kitchin Ltd.					"	Antwerp, 2		
Tanner's Bark	Belgium, 38 t.	Leach & Co.					Soapstone—	Genoa, 500 bgs.	W. Harrison & Co.	
"	Sydney, 129	Union M. & A. Co. of Aus.					Starch—	Baltimore, 400 bgs.		
Turmeric	E. Indies, 250 pkgs.	Lewis & Peat					Philadelphia, 800	Philadelph, 100 pkgs.	10 bls.	70 cs.
"	109	Arbuthnot, Ewart & Co.					Rotterdam, 200 sks.	Boston, 200 sks.	Stratford Brs., & Co.	
"	250	Ross & Deering					"	Antwerp, 10 cs.	J. T. Fletcher & Co.	
"	1,001	E. D. Sassoon & Co.					"	Hamburg, 284		
Dyestuffs (otherwise undescr'd)	Ceylon, 50 pkgs.	Prop. Sun Wf.					"	Rouen, 25 bgs.	Co-op. W'sale Society, Ltd.	
E. Indies, 6	J. P. Alpe & Co.						"	New York, 13	Antwerp, 13	
Farina—	Holland, 100 pkgs.	J. Barber & Co.					Sulphur—	Marseilles, 200 bgs.	10 cks.	
"	50	Hicks, Nash, & Co.					Talc—	Trieste, 150 bgs.	Schroder & Co.	
"	15	G. Rahn & Co.								
"	249	C. F. Webster & Co.								
Glucose—	U. States, 100 pkgs.	561 c.	L. & I. D. Jt. Co.							
"	"	135	600	L. Norman & Co.						
"	"	199	199	L. Sutro & Co.						
"	"	1,601	1,601	Barrett, Tagant & Co.						
"	"	250	250	Ohlenschlager Bros.						
Holland, 120	120	Prop Sun Wf.								
Germany, 8	65	Chmbln's Wf.								
U. States, 250	250	L. Sutro & Co.								
"	500	1,751	R. G. Hall & Co.							
"	120	660	T. M. Duche & Sons							
Germany, 13	100	J. Knill & Co.								
"	15	87	F. Fink & Co.							
"	30	243	Beck & Pollitzer							
France, 20	300	Fenning's Wf.								
Guanos—	U. States, 650 t.	Anglo Contl. G. Wks.								

LIVERPOOL.

Week ending October 19th.

Albumen—	Lattakia, 3 bxs.	J. Facha & Co.	Chemical Co.
Trieste, 8 cs.	Albumen		
Marseilles, 4	Alumina Sulphate—	Rotterdam, 10 cks.	
Aluminium—	New York, 25 cs.		
Aniline—	Rotterdam, 3 cks.		
Antimony—	Antofagasta, 56 bgs.	Hainsworth, Watson & Co.	
Barytes—	Rotterdam, 26 cks.		
Borate of Lime—	Valparaiso, 1,500 bgs.		
Borax—	Valparaiso, 102 sks.	H. W. Gibson	
Carbonic Acid Gas—	In transit, 102 tubes		
Castor Oil—	Calcutta, 500 cs.	Ralli Bros	
Marseilles, 48	Chemicals (otherwise undescr'd)	In transit, 77 cs.	
Chloroform—	In transit, 1 cs.	Cunard S. S. Co., Ltd.	
Chrome Ore—	Baltimore, 33 cks.	P. R. McQuire & Son	
Colours—	Stettin, 5 cks.	Evans, Sons & Co.	
Rotterdam, 15	7 cs.		
Antwerp, 3 brls.			
Hamburg, 19			
Cream of Tartar—	Marseilles, 10 brls.		
Barcelona, 5 hds.	Sachse & Klemm		
Dyestuffs—	Argols	19 cs.	M. Angelopulo
Las Palmas, 10 bgs.	Widow, Duranty & Son		
Gr. Canary, 23 bgs.	Sperling & Williams		
"	Padgett & Co.		
"	G. S. Bruce		
Cutch	Rangoon, 2,564 cs.		
Divi Divi	Hamburg, 110 bgs.		
Extracts	Fiume, 125 brls.	Oak Extract Co.	
Baltimore, 20	Hervey, Peek & Co.		
"	25	R. Schloersen & Sons	
"	20		
Fustic	Trieste, 18 t.	A. Cross & Co.	
Indigo	Bombay, 9 cs.		
Logwood	Old Harbour, 677 t.	3 c.	
Harve, qty.	Cunard S. S. Co., Ltd.		
New York, 1 t.	W. L. Malcomber		
"	20 brls.		
Madder	Rotterdam, 4 cks.	1 bx.	

Tallow —		
B. Ayres, 551 pps. 52 hf. pps.	Hay-	
Philadelphia, 100 tcs.	croft & Pethwick	
Sydney, N.S.W., 985 cks.	Lever	
	Brs., Ltd.	
Boston, 21 hds.	F. L. Young	
New York, 35		
Boston, 25	44 brls.	
Tar —		
Marseilles, 7 brls. 12 bdl.		
Tartar —		
Bordeaux, 26 bgs. 18 cks.		
Tartaric Acid —		
Rotterdam, 10 kgs. 10 cks.		
furfentine —		
Lisbon, 14 brls.	E Brunner	
Ultramarine —		
Rotterdam, 25 cs. 12 cks.		
Varnish —		
Rouen, 18 cs. 6 cks.	Co-op.	
Boston, 20 bxs. 4 brls.	W'sale Society, Ltd.	
Verdigris —		
Marseilles, 2 cs.		
Waste Salt —		
Hamburg, 139 t. 100 bgs.		
White Lead —		
Rotterdam, 36 cks.		
Zinc Ashes —		
Trieste, 6		
Zinc Oxide —		
New York, 50 brls.		
Zinc White —		
Rotterdam, 50 cks.	O. & H. Marcus	

HULL.

Week ending October 21st.

Acid —		
Hamburg, 20 balns.	Furley & Co.	
Albumen —		
St. Petersburg, 30 cs.		
Hamburg, 7 cks.	Wilson, Sons, & Co., Ltd.	
Barytes —		
Antwerp, 46 cks. 100 bgs.	Bailey & Leetham	
"	23	
Bremen, 34	Veltmann & Co.	
"	44	H. F. Pudsey
"	63	
Camphor —		
Hamburg, 7 cks.	Wilson, Sons, & Co., Ltd.	
Chemicals (otherwise undescribed)		
Bari, 50 cks.	Wilson, Sons, & Co., Ltd.	
Hamburg, 7	"	
Antwerp, 87 pks.	"	
Bremen, 1 cs.	Veltmann & Co.	
"	2 cks.	J. Pyefinch & Co.
Dunkirk, 66 pks.	Wilson, Sons, & Co., Ltd.	
China Clay —		
Hamburg, 166 cks.	Wilson, Sons, & Co., Ltd.	
Colours —		
Stettin, 50 kgs. 10 cks.	Wilson, Sons, & Co., Ltd.	
Amsterdam, 1 ck.	W. & C. L. Ringrose	
Ghent, 34 pks.	Wilson, Sons, & Co., Ltd.	
Rotterdam, 40 pks.	W. & C. L. Ringrose	
"	73	G. Lawson & Sons
Flushing, 4 cs.	17 pks.	"
Hamburg, 6	Brasch & Rothenstein	
Bremen, 2	20 cks.	Sissons Bros. & Co.
Flushing, 1	21	Hutchinson & Son
Rotterdam, 3	29	19 pks. "
Dyestuffs —		
Alizarine		
Rotterdam, 51 cks.	W. & C. L. Ringrose	
"	5 brls.	G. Lawson & Sons
Logwood		
Antwerp, 6 cks.	Bailey & Leetham	

Madder		
Rotterdam, 1 ck.	J. Pyefinch & Co.	
"	2	G. Lawson & Sons
"	3	Hutchinson & Son
Myrabolams		
Bombay, 3,161 bgs.		
Sumac		
Palermo, 2,726 bls.	Wilson, Sons & Co., Ltd.	
"	925 bgs.	
Farina —		
Stettin, 600 bgs.	Wilson, Sons & Co., Ltd.	
Harlingen, 550	1,275 pks.	
Ghent, 72 cs.	Wilson, Sons & Co., Ltd.	
Hamburg, 500 bgs.	"	
Glucose —		
Rotterdam, 50 bgs.	Hutchinson & Son	
Stettin, 65 cks.	Wilson, Sons & Co., Ltd.	
"	300 bgs.	
Ochre —		
Rouen, 79 cks.	Rawson & Robinson	
Paint —		
New York, 40 brls.	Anglo-American Oil Co.	
Phosphate Rock —		
Pt. Royal, 1,860 t.	Hammond, Ems & Co.	
Pitch —		
Antwerp, 17 cks.	Wilson, Sons, & Co., Ltd.	
Amsterdam, 13	H. F. Pudsey	
Pumice Stone —		
Trieste, 3 cs.	Wilson, Sons, & Co., Ltd.	
Messina, 297 pks.		
Pyrites —		
Huelva, 1,461 t.		
Salt —		
Hamburg, quantity		
Saltpetre —		
Hamburg, 10 kgs. 20 cks.	Wilson, Sons, & Co., Ltd.	
Soap —		
Copenhagen, 5 cs.	Wilson, Sons, & Co., Ltd.	
Rotterdam, 2	G. Lawson & Sons	
Sodium Nitrate —		
Hamburg, 286 kgs.	Wilson, Sons, & Co., Ltd.	
Starch —		
Antwerp, 300 cs.	Reckitt & Sons	
Bremen, 1,102 pks.	Veltmann & Co.	
Stearine —		
Antwerp, 23 bgs.	Wilson, Sons, & Co., Ltd.	
Sulphur —		
Catania, 100 cks. 2,531 pks.	Wilson, Sons, & Co., Ltd.	
"	467 pks.	
Talc —		
Trieste, 5 bgs.	Wilson, Sons, & Co., Ltd.	
Tallow —		
New York, 389 tcs.	Wilson, Sons, & Co., Ltd.	
Tar —		
Stockholm, 50 brls.	Wilson, Sons, & Co., Ltd.	
Copenhagen, 2	J. Good & Sons	
Tartar —		
Messina, 1 ck.	Wilson, Sons, & Co., Ltd.	
Bordeaux, 3 cks. 2 bgs.		
Tartaric Acid —		
Rotterdam, 4 cks.	G. Lawson & Sons	
Tin Ashes —		
Hamburg, 6 cks.	G. Lawson & Sons	
Turpentine —		
Savannah, 2,618 cks.	G. & J. Rawstorn	
Ultramarine —		
Cologne, 10 cks. 1 cs.		
Bremen, 20		
White Lead —		
Cologne, 72 cks.		
Antwerp, 94	Bailey & Leetham	

GLASGOW.

Week ending October 26th.

Acetic Acid —		
Rotterdam, 4 cks.	J. Rankine & Son	
Barium Sulphate —		
Antwerp, 320 bgs. 24 cks.		
Barytes —		
Rotterdam, 85 cks.		
"	11	J. Rankine & Son
Bone Meal —		
Onunderford, 1,448 bgs.		
Rotterdam, 102 bls.	J. Rankine & Son	
Chemicals (otherwise undescribed)		
Hamburg, 1 bg.		
Colours —		
Rotterdam, 5 cks. 5 cs. 27 pks.		
Hamburg, 1	J. Rankine & Son	
"	8	1 cs.
Cream of Tartar —		
Oporto, 7 cks.		
Dyestuffs —		
Alizarine		
Rotterdam, 2 cks. 35 pks.		
Argols		
Bordeaux, 38 bgs.		
Extracts		
Baltimore, 12 brls.	J. Strang & Sons	
"	50 bxs.	M'Arthur, Scott, & Co.
Fiume, 200		
Antwerp, 3 cks.		
New York, 50 brls.		
Fustic		
New York, 1,399 pcs.		
Logwood		
Jamaica, 590 t.	M'Arthur, Scott, & Co.	
New York, 77		
Sumac		
Palermo, 200 bgs.	Wm. Buntin & Co.	
"	300	
Farina —		
Hamburg, 41 bgs.		
Fluor Chrome —		
Rotterdam, 1 bx.	J. Rankine & Son	
French Chalk —		
Trieste, 100 bgs.	P. M'Intosh & Co.	
Glucose —		
New York, 450 brls.		
Guano —		
Onunderford, 429 bgs.		
Iron Oxide —		
Trieste, 62 brls.	Ferguson & Reid	
Lead Acetate —		
Hamburg, 12 cks.		
Painters' Colours —		
Antwerp, 10 cs.		
Paraffin Wax —		
New York, 1,315 brls.		
Pitch —		
Antwerp, 10 cks.		
Potashes —		
Montreal, 20 brls.		
Hamburg, 11 cks.		
Rosin —		
Baltimore, 1,600 brls.		
New York, 1,002		
Soap —		
New York, 192 brls.		
Bari, 51 cs.		
Starch —		
Philadelphia, 1,600 bgs.		
Montreal, 25 bxs.		
New York, 1,750 sks.		
Fiume, 20	Wm. Stirling	
"	50	J. Anderson & Co.
"	20	
Antwerp, 20		
Sulphur —		
Catania, 260 bgs. 200 brls.		
Tallow —		
Philadelphia, 100 tcs.		
New York, 260		
Tannin —		
Hamburg, 1 ck.		
Tar —		
In transit, 240 brls.		

Tartar —		
Bordeaux, 24 cks.		
In transit, 5		
Ancona, 3		
Ultramarine —		
Hamburg, 4 cks.		
Varnish —		
New York, 20 brls.		
Waste Salt —		
Hamburg, 108 cks. 575 bgs.		
White Lead —		
Rotterdam, 77 cks.	J. Rankine & Son	
Zinc Oxide —		
New York, 100 brls.		
Antwerp, 90 cks.		

TYNE.

Week ending October 21st.

Alum Earth —		
Hamburg, 18 cks.	Tyne S. S. Co.	
Asbestos —		
Copenhagen, 1 truss		
Barytes —		
Rotterdam, 69 cks.	Tyne S. S. Co.	
Antwerp, 70	200 bgs. "	
Colours —		
Rotterdam, 13 cs. 1 ck.	Tyne S. S. Co.	
Hamburg, 2 brls.	"	
Antwerp, 3 cks.	"	
Limestone —		
Antwerp, 1 cs.	Tyne S. S. Co.	
Pyrites —		
Huelva, 2,094 t.	Scott Bros.	
Saltpetre —		
Harburg, 170 t.		
Hamburg, 3 cks.	Tyne S. S. Co.	
Soap —		
Rotterdam, 2 cs.	Tyne S. S. Co.	
Ultramarine —		
Hamburg, 5 cs.	Tyne S. S. Co.	

GRIMSBY.

Week ending October 21st.

Albumen —		
Hamburg, 10 cks.		
Caoutchouc —		
Rotterdam, 2 pks.		
Chemicals (otherwise undescribed)		
Hamburg, 2 bgs.		
Dyestuffs (otherwise undescribed)		
Dieppe, 25 cks.		
Farina —		
Hamburg, 145 bgs.		
Pitch —		
Dieppe, 10 cks.		
Size —		
Antwerp, 3 cks. 1 cs. 10 pks.		

GOOLE.

Week ending October 18th.

Alkali —		
Hamburg, 10 cks.		
Calais, 13		
Antimony —		
Boulogne, 2 cks.		
Caoutchouc —		
Boulogne, 2 cks.		
Carbonate of Lime —		
Antwerp, 27 bgs.		
Dyestuffs —		
Alizarine		
Rotterdam, 272 pks.		
Indigo		
Rotterdam, 6 chts.		
Dyestuffs (otherwise undescribed)		
Boulogne, 41 cks. 65 cs. 19 pks.		
Farina —		
Hamburg, 500 bgs.		
Phosphate —		
Ghent, 100 t.		
Potash —		
Hamburg, 10 cks.		
Soda —		
Rotterdam, 15 cks.		
Waste Salt —		
Hamburg, 620 cks. 989 bgs. 420 t.		
Zinc Oxide —		
Antwerp, 10 brls.		

EXPORTS OF CHEMICAL PRODUCTS OF THE PRINCIPAL PORTS OF THE UNITED KINGDOM.

LONDON.

Week ending October 25th.

Acetic Acid—		
Melbourne, 6 cs.	£8	
Alkali—		
Melbourne, 2 t. 12 c.	£120	
Oporto, 15	10	
Ghent, 10	40	
Ammonia (Liquid)—		
Yokohama, 3 cs.	£11	
Ammonium Carbonate—		
Melbourne, 20 cs.	£37	
St. Petersburg, 5 t.	160	
Rouen, 4 1 c.	135	
Yokohama, 20	41	
Alexandria, 10	18	
Oporto, 14	11	
Dunkirk, 1 2	35	
Adelaide, 1 5	50	
Sydney, 10	20	
Brisbane, 2	8	
Ammonium Chloride—		
Alexandria, 12 cs.	£19	
Varna, 1 t. 19 c.	55	
Galatz, 1 10	48	
Liban, 1 ck.	10	
Hamburg, 42	273	
Constantinople, 1	34	
Antwerp, 44	205	
Cologne, 18	88	
Braila, 10	19	
Ammonium Sulphate—		
Ostend, 10 t. 2 c.	£130	
Antwerp, 30 7	390	
Hamburg, 44	570	
Arsenic—		
Calcutta, 1 t. 5 c.	£28	
Adelaide, 1 20 kgs.	37	
Lyttelton, 1	16	
Benzoic Acid—		
Hamburg, 1 cs.	£30	
Borax—		
Oporto, 9 c.	£10	
Natal, 10	17	
Melbourne, 2 t.	62	
Hamburg, 6 cks.	44	
Genoa, 2 3 c.	152	
Cologne, 6 17	195	
Constantinople, 12	18	
Braila, 2 brls.	18	
Carbolic Acid—		
Colombo, 17 c.	£24	
Rio de Janeiro, 2 cs.	13	
Melbourne, 2	7	
Calcutta, 40 drs.	14	
Carbon Bisulphide—		
Rotterdam, 4 t. 12 c.	£62	
Caustic Soda—		
Auckland, 5 t.	£36	
Napier, 5 16 c.	70	
Natal, 3 4	51	
Algoa Bay, 3 4	108	
Calcutta, 28 16	320	
Chemicals (otherwise undescribed)		
Algoa Bay, 12 cks 4 cs.	£45	
Adelaide, 10 kgs.	82	
Boulogne, 1	15	
Valencia d'Alcantara, 10	34	
Shanghai, 2 c.	10	
Madrid, 9	25	
Melbourne, 3	10	
Gibraltar, 22 pkgs.	18	
Chloride of Lime—		
Rio de Janeiro, 8 cs.	£9	
Shanghai, 2 cks.	7	
Citric Acid—		
Sydney, 1 c.	£9	
Copenhagen, 1 ck.	41	
Riga, 2	18	
Bombay, 1½	14	
Hamburg, 8 1	109	
St. Petersburg, 2 t. 11	416	
Brussels, 1	160	
Rotterdam, 13	106	
Flushing, 6 kgs.	55	
Marseilles, 4	37	
Genoa, 1	170	
Brisbane, 5	41	

Fremantle, 1	8	
Delagoa Bay, 2	17	
Adelaide, 11	90	
Barcelona, 5 brls.	210	
Liban, 3	25	
Coal Products—		
Aniline		
Rio de Janeiro, 1 cs.	£15	
Anthracene		
Rotterdam, 320 cks.	£1,320	
Benzol		
Terneuzen, 33 drs.	£265	
Hamburg, 83 cks.	295	
Rotterdam, 31 pkgs 19	517	
Calais, 24 runs.	75	
Pitch		
Ibrail, 25 cks.	£8	
Galatz, 25	8	
Dunkirk, 807 t.	1,130	
St. Nazaire, 210	350	
Amsterdam, 697	891	
Salonica, 100 brls.	£43	
Rotterdam, 235	270	
New York, 500 cks.	250	
Duisberg, 175	240	
Brindisi, 1,550	2,093	
Catania, 25	14	
Tar		
Ibrail, 50 cks.	£30	
Rouen, 300 brls.	145	
Toluol		
Rotterdam, 24 cks. 5 puns.	£113	
Copperas—		
Varna, 6 t. 16 c.	£12	
Adelaide, 10	22	
Cologne, 5	8	
Copper Sulphate—		
Oporto, 1 t. 2 c.	£13	
Salonica, 1 1	16	
Rotterdam, 10	150	
Cape Town, 18	18	
Cream of Tartar—		
Lyttelton, 10 c.	£37	
E. London, 2 cs.	10	
Nelson, 6	28	
Fremantle, 6	17	
Melbourne, 2 t. 4	145	
Sydney, 2	145	
Auckland, 10	38	
Dunedin, 1 10	110	
Adelaide, 1	82	
Delagoa Bay, 10	25	
Brisbane, 9	35	
Disinfectants—		
Brisbane, 5 cs.	£51	
Calcutta, 5 t. 17 c.	92	
New York, 2 4	37	
Sydney, 5 cks.	23	
Melbourne, 18 20 cs.	50	
Hamburg, 66	30	
Algoa Bay, 4	20	
Kingston, 10 pkgs.	17	
Calcutta, 10 drs.	28	
Aden, 1 t. 4	7	
Flowers of Sulphur—		
Algoa Bay, 4 t. 9 c.	£55	
Guano—		
Bordeaux, 15 t.	£150	
Genoa, 75	750	
Barbadoes, 470	4,700	
St. Vincent, 30	250	
Hypophosphites—		
New York, 20 cs.	£300	
Manure—		
Lisbon, 8 t. 5 c.	£40	
Rouen, 34	125	
Philadelphia, 1	16	
Treport, 19 19	120	
Bordeaux, 59 7	310	
Valencia, 5	48	
St. Heliers, 85	425	
Gothenburg, 20 11	75	
Algoa Bay, 10	8	
Cape Town, 98 4	537	
Metallic Sodium—		
New York, 20 cs.	£452	
Myrbane—		
Sydney, 7 c.	£24	
Hamburg, 10 cs.	44	

Nitric Acid—		
Penang, 10 c. 10 cs.	£38	
Madras, 19	8	
Oxalic Acid—		
Melbourne, 1 t. 14 c.	£48	
Phosphoric Acid—		
Trinidad, 2 cks.	£24	
Demerara, 5 t.	86	
Phosphorus—		
Melbourne, 3 cs.	£12	
Picric Acid—		
Riga, 3 c.	£21	
Potash Salts—		
Adelaide, 2 t. 13 c.	£290	
Townsville, 2 8	325	
Potassium Bichromate—		
Galatz, 8 c.	£18	
St. John, 2 cks.	56	
Potassium Bromide—		
Melbourne, 1 c.	£9	
Potassium Carbonate—		
Shanghai, 1 t. 6 c.	£19	
Potassium Chlorate—		
Liban, 1 t.	£68	
Sydney, 2 10 c.	155	
Potassium Cyanide—		
Shanghai, 4 cks.	£30	
Algoa Bay, 2 cs.	12	
Melbourne, 1	9	
Potassium Iodide—		
Melbourne, 1 c.	£64	
Potassium Prussiate—		
New York, 56 cks.	£664	
Riga, 5 c.	41	
Saltpetre—		
E. London, 9 c.	£10	
Nelson, 5	6	
Oporto, 3 t.	59	
Dunedin, 2	42	
Hamburg, 2 7	49	
Pernambuco, 3 6	74	
Halifax, 1 12	34	
Lisbon, 7 10	147	
Gibraltar, 15	300	
Almeria, 1 1	22	
Ghent, 215	331	
Algoa Bay, 5	6	
Sheep Dip—		
Algoa Bay, 700 cs 1 t. 3 c.	£2,153	
Sydney, 19 6	400	
Lyttelton, 4 7	101	
Melbourne, 186 drs.	150	
Invercargill, 750	1013	
Santa Cruz, 23 cs. 64 pkgs.	219	
San Julian, 8 drs. 46	101	
Gallegos, 20 cs.	40	
E. London, 500	1,500	
Soda—		
Natal, 5 c.	£11	
Nelson, 4 t. 15	17	
Algoa Bay, 1 2	3	
Soda Crystals—		
Algoa Bay, 17 c.	£3	
Cape Town, 4 t. 18	23	
Antofagasta, 16	63	
La Guayra, 2	71	
Sodium Bicarbonate—		
Wellington, 1 t.	£8	
Auckland, 2	15	
Townsville, 1	8	
Canterbury, 1	8	
Nelson, 1	8	
Fremantle, 14 c.	6	
Delagoa Bay, 1	8	
Mormugao, 1	8	
Algoa Bay, 4 7	70	
Rockhampton, 10	4	
Strychnine—		
Melbourne, 10 cs.	£60	
Sulphur—		
E. London, 25 cks.	£15	
Pernambuco, 40 kgs.	20	
Sulphur Dioxide—		
New York, 1 c.	£14	

Sulphuric Acid—		
Amsterdam, 1 t. 3 c.	£10	
Colombo, 18	16	
Algoa Bay, 50 drs.	69	
Aden, 9 cs. 15	17	
Cape Town, 1 t. 10	14	
Superphosphate—		
Bordeaux, 10 t.	£30	
Tartaric Acid—		
Brisbane, 10 c.	£50	
Lyttelton, 2	10	
Nelson, 5	31	
Melbourne, 3 t. 10	341	
Fremantle, 1	5	
St. Petersburg, 2 10	251	
Adelaide, 1 3	119	
Barcelona, 3 19	377	

LIVERPOOL.

Week ending October 25th.

Acetic Acid—		
Piræus, 1 t. 10 c.	£25	
Alum—		
Larnaca, 1 t. 9 c.	£7	
Alexandria, 6 19	31	
Tripoli, 7 1	34	
Calcutta, 28 2	154	
Ancona, 6	36	
Beyrout, 18 10 1 q.	92	
Ammonia (Liquid)—		
M Video, 3 c.	£7	
Hong Kong, 10	63	
Ammonium Carbonate—		
Rangoon, 10 c.	£18	
Ammonium Chloride—		
Cabenda, 3 c. 2 q.	£6	
St. Petersburg, 5 t. 8 2	175	
Naples, 11	20	
Calcutta, 3	102	
Hiogo, 1 1	40	
Antwerp, 1 10	35	
Ammonium Sulphate—		
Hamburg, 8 t. 15 c.	£115	
Nantes, 71 4 2 q.	926	
Bordeaux, 34 19	438	
Valencia, 159	1,942	
Samarang, 315	4,040	
Tagal, 50	650	
Cheribon, 98 19 3	1,194	
Sourabaya, 240 10	3,126	
Demerara, 89 9 2	1,162	
Antimony—		
Montreal, 1 ck.		
Vera Cruz, 2		
Asbestos—		
Campana, 7 cs.		
Tuticorin, 2		
Barytes—		
Montreal, 11 cks.		
Bleaching Powder—		
Baltimore, 85 cks.		
Boston, 172		
Genoa, 40		
Lisbon, 15		
Montreal, 54		
New York, 286 10 brs.		
Vera Cruz, 34 brls.		
Bilbao, 30		
Callo, 6 cs.		
Rouen, 14		
Boracic Acid—		
Rouen, 11 t. 11 c.	£388	
Borax—		
Hamburg, 21 t. 3 c. 1 q.	£638	
Seville, 9	13	
Adelaide, 5 1	8	
Rotterdam, 5 17 1	172	
Talcahuano, 4 1	7	
Calcic Chloride—		
New York, 10 t. 10 c.	27	
Camphor—		
Talcahuano, 1 pkg.		
Carbolic Acid—		
Hamburg, 4 t. 19 c. 2 q.	£232	
Malta, 10	19	
Castor Oil—		
Accra, 2 brls.		
Caustic Potash—		
New York, 1 t. 15 c.	£42	

Caustic Soda—

Boston,	30 brls.	
B. Ayres,	50 dms.	
La Guayra,	10	
New York,	34	40 bxs.
Pernambuco,	50	
Rosario,	30	
Santander,	7	
Savanna,	20	
Valparaiso,	226	
Vigo,	15	
Genoa,	3	
Rouen,	34	
San Francisco,	10	

Chemicals (otherwise undescribed)

Hamburg,	12 c.	£20
Nantes,	1	35
Barcelona,	1	35
Oporto,	6	10
Marseilles,	4	2 q. 8
Rio de Janeiro,	99 cs.	256
Alexandria,	1	10
Larnaca,	4	7
Genoa,	3	113
Antwerp,	1	34

China Clay—

Barcelona,	20 t.	
Bombay,	50	
Malaga,	4	15 c.
Boston,	178	
Calcutta,	50	
Genoa,	10	
Mechanic Falls,	50	
N. Orleans,	15	
Odessa,	10	
Rio de Janeiro,	10	5

Glyceric Acid—

Manila,	2 c.	1 q. £20
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Coal Products—

Alizarine Oil		
Lisbon,	1 ck.	
Aniline Salts		
New York,	19 cks.	
Naphtha		
Calcutta,	20 dms.	
Pitch		
B. Ayres,	7 brls.	
New York,	6 cks.	
Cette,	1,454 t.	8 c.
Tar		
Bahia,	25 brls.	
Galatz,	25	
Ibrail,	10	
Piraeus,	6	
Sierra Leone,	30	10 hf.-brls.
Tar Salts		
New York,	2 t.	9 c. 1 q. £30

Cobalt Oxide—

Rotterdam,	4 cks.	£127
Gijon,	1	32

Copperas—

Alexandria,	4 t.	10 c. 3 q. £9
New York,	35	10
Tripoli,	3	9
Calcutta,	66	13
Callao,	10	brls.

Copper Sulphate—

Bordeaux,	5 t.	
Genoa,	4	13 c. 1 q. £63
Venice,	4	4 3 32
Riga,	10	3 1 151
Rouen,	5	11 89
Melbourne,	5	78
Vera Cruz,	25	3 1 384
Messina,	1	11 23
Pachuca,	15	228
Ibrail,	1	16

Cream of Tartar—

Talcahuano,	1 c.	£8
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Dried Blood—

Cette,	50 t.	£330
Marseilles,	50	330
Rouen,	4	30

Farina—

Valleyfield,	6 cks.	
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Flowers of Sulphur—

Havana,	14 c.	1 q. £6
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Guanos—

Bilbao,	1 t.	19 c. 1 q. £21
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Lead Acetate—

Calcutta,	1 t.	12 c. £44
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Painters' Colours—

Amsterdam,	8 cks.	5 dms. 2 fks. 7 kgs.
B. Ayres,	21	84 cs. 90 brls. 100
Canada,		
Hamburg,	52	18 kgs. 2 fks.
Lisbon,	30	
Magog,	2	
Malta,		
Maranham,	1	1 cs. 7 brls. 766 kgs.
Mollendo,		4

M. Video,

Nassau,	4 dms.	1
Para,	11 cks.	
Pernambuco,	55	3 20
Piraeus,	14	20 10
Puerto Cabello,		
Sierra Leone,		45
Tabon,	1 pkg.	260 6
Teneriffe,		48
Valleyfield,	2	
Valparaiso,	40	56 cs.
Alexandria,	90	
Antwerp,	5	
Arroyo,	2	
Axim,	1	
Bahia,		
Bilbao,	24 dms.	40
Cartagena, S.,	7 cks. 10	
Demerara,		30
Havana,	3	9
Mayaguez,	5	
New York,	4	
Odessa,	40	

Paraffin Wax—

Salonica,	25 cs.	
Palermo,	5	

Phosphate—

Hamburg,	21 t.	£100
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Phosphorus—

Vera Cruz,	6 cs.	£60
Shanghai,	27	270
Yokohama,	10	100
Kobe,	50	630

Plumbago—

Piraeus,	1 ck.	
Bilbao,	5	

Potash—

B. Ayres,	1 t.	3 c. 1 q. £50
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Potassium Bichromate—

B. Ayres,	2 t.	2 c. 2 q. £87
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Potassium Carbonate—

New York,	7 t.	13 c. £140
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Potassium Chlorate—

St. Petersburg,	35 t.	£2,123
Malmo,	1	56
Kobe,	5	286
Kalmar,	1	4 c. 2 q. 90
Higo,	34	5 2 2,199
Rouen,	2	16 155
Sydney,	2	10 152
Manila,	2	4 14
Stettin,	2	128
Hamburg,	1	56
New York,	12	10 764
Shanghai,	1	10 94
Copenhagen,	3	10 210
Randers,	2	125
Stockholm,	5	286
Calcutta,	1	55

Potassium Stannate—

Bombay,	1 t.	7 c. £105
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Salt—

Accra,	10 t.	
Antwerp,	465	
Baltimore,	85	
Belize,	200	
Calcutta,	5,781	
Copenhagen,	332	
Demerara,	44	10 c.
Ghent,	250	
Gr. Bassam,	16	
Halifax,	115	
Iceland,	86	
Loango,	29	
Montreal,	389	11
New York,	130	18
Old Calabar,	1,201	5
Quebec,	170	
Rotterdam,	158	
San Francisco,	82	3
Sydney,	125	
Adelaide,		10
Bombay,	2	3
B. Ayres,	80	7
Callao,	1	10
Gr. Bassam,	20	
Havana,	2	5
Indianapolis,	20	
Malta,	5	
N. Orleans,	500	
Underhill,	1	
Victoria, W.C.A.,	10	14

Salt Cake—

Baltimore,	75 t.	10 c. £105
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Saltpetre—

Zante,	2 t.	£46
Bahia,	5	19 c. 3 q. 125
M. Video,		2 5
Para,		10 12
Pernambuco,	1	14 1 38
B. Ayres,		5 14
Parnabyba,	7	3 21

Sheep Dip—

B. Ayres,	2 t.	15 c. 2 q. £100
Punta Arenas,	16	17 2 332
Montreal,		2 19

Soap—

Accra,	150 bxs.	
Alexandria,	20	
Algoa Bay,	1,190	61 cs.
Amsterdam,	200	
Anamaboe,	50	5
Annatto Bay,	30	
Assinee,	40	
Bahia,		1
Bathurst,	12	
Bayin,	25	
Black River,	108	
Bluefields,	600	
Bombay,	25	
Huguma,	312	
Calcutta,	500	9
C. C. Castle,	130	
Cape Town,	750	6
Colon,	300	
Curacao,	120	
Demerara,	2,233	
E. London,	1,988	175
Kingston, Ja.,	2,692	
Gr. Bassam,	24	
Kurrachee,	7	10
Little Popo,	50	
Madras,	12	10
Monrovia,	40	
Montego Bay,	345	
N. Orleans,	225	
New York,	509	75 pkgs. 12 brls.
Para,	30	
Pedro,	40	
Pt. Elizabeth,	538	
Pt. Natal,	350	25 cs.
Pt. Said,	10	
Rangoon,		1
Rome,	12	
S. Thomas, W.I.,	550	
Salt Pond,	172	
Sette Kroo,	14	
Shanghai,	2,600	
Talcahuano,	2	
Valparaiso,	200	1
Antofagasta,		10
Barbadoes,	300	
Belize,	900	
Boston,		28
Brussels,		412
Colombo,		15
Ferrol,		1
Genoa,	150	
Gibraltar,	175	
Gr. Bassa,	30	
Havre,		934
Lanzarote,	100	
Las Palmas,	330	
Leige Meuse,	400	
Manila,	2	
Monterey,	1	
Ottawa,	100	
Pernambuco,		2
St. John's, Nfld.,	20	
Singapore,	43	
Teneriffe,	30	
Toronto,		750
Trinidad,	500	
Zanzibar,	400	

Soda—

Philadelphia,	167 bgs.	34 cks.
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Soda Alkali—

Alicante,	40 brls.	
Buffalo,	60	
Odessa,	75	
Toronto,	105	

Lime—

Demerara,	82 t.	18 c. £130
Savannah,	4	12 3 c. 15

Magnesia—

Paris,	16 c.	2 q. £26
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Magnesium Sulphate—

Colombo,	8 cks.	
Montreal,	10	
Santos,	7	

Manganese—

Algoa Bay,	10 t.	
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Manure—

Bordeaux,	80 t.	2 c. £383
Malaga,	10	90
Alexandria,	3	24
St. John's, N.F.,	5	11

Metallic Sodium—

Rotterdam,	7 t.	2 c. £1,471
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Nickel Salts—

Havre,	3 brls.	
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Nitrate of Iron—

Montreal,	7 t.	6 c. 2 q. £20
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Ochre—

Rotterdam,	15 bgs.	
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Oxalic Acid—

St. Petersburg,	4 t.	14 c. 2 q. 1
Syra,		5 cks.

Paint—

C. C. Castle,	168 kgs.	
Carthage, Sp.,		4 dms.
Genoa,		114 5 cs.
La Libertad,	2 cks.	
Lisbon,		1
Shanghai,		80
Calcutta,	10 kgs.	
Colombo,		5 cks.
Manilla,	645	150 20
Old Calabar,	45	
Ponce,		1

Soda Ash—

Antwerp,	300 bgs.	
Baltimore,	934	160 cks. 263 t.
Batavia,		5
Batoum,		10
Bombay,		11
Boston,	1,400	192 18
Brisbane,		336
B. Ayres,	50 brls.	
Callao,		23 d
Canea,	50	
Cheribon,	40	
Copenhagen,		50 h
Corfu,	30	
Genoa,		200
Ghent,		13 267
Hamburg,		300
Ibrail,		19
Maranham,	10	
M. Video,		20
Montreal,	111 tcs.	1,064
Naples,		20
N. Orleans,		27
New York,	25	63 6,282
Philadelphia,		68
Riga,		88
Rosario,	40 brls.	
St. Petersburg,		120
Syra,	150	10
Trieste,		22
Venice,		22
Yokohama,	50	
Zante,	310	
Calcutta,		25
Constantinople,		15
Gothenburg,	10 cs.	
Higo,	50 brls.	
Lisbon,		5
Oporto,		2
Rotterdam,		100
Smyrna,	200	

Soda Crystals—

Bari,	10 brls.	
B. Ayres,		70 cks.
Constantinople,	50	
Kingston, Jam.,	6	
Malaga,	20	
M. Video,		86
Montreal,	100	75 kgs.
Pernambuco,	100	
Quebec,	100	
St. John's, N.F.,		2 cs.
Batavia,	15	
Calcutta,		33
Galt,		25 cks.
Ureal,	12	

Sodium Bichromate —			
Ghent,	16 cks.		
Sodium Chlorate —			
Hamburg,	20 kgs.		
Rotterdam,	20		
Vera Cruz,	40		
Sodium Nitrate —			
Demerara,	30 cks.		
Sodium Silicate —			
Barcelona,	245 brls.		
Bombay,	12		
Dunedin,	10		
Monterey,	32 cks.		
Montreal,	90		
Savannah,	4		
Toronto,	26		
Caceres,	20		
Seville,	100		
Valencia,	17		
Sulphur —			
Halifax,	7 t. 10 c.	£32	
Boston,	200 5	773	
Trinidad,	45 3	181	
Para,	5 5	5	
Demerara,	5 10	39	
Superphosphate —			
Nantes,	409 t. 14 c. 2 q.	£914	
Valencia,	75 1	157	
Tartaric Acid —			
Loango,	1 c.	£7	
Turpentine —			
Rotterdam,	5 brls.		
Varnish —			
Antwerp,	4 brls.		
Barcelona,	6 cks.		
Campana,	84 cs.		
Genoa,	1 1 ck.		
Zinc Chloride —			
Bordeaux,	6 t.	£29	
Bombay,	6 10 c.	100	

HULL.

Week ending October 21st.

Alkali —			
Abo,	5 cks.		
Bergen,	2		
Ammonium Sulphate —			
Dunkirk,	531 bgs.		
Ghent,	434		
Rotterdam,	638		
Rouen,	386		
Basic Slag —			
Stettin,	60 t.		
Bleaching Powder —			
Naples,	86 cks.		
Stettin,	48		
Borax —			
Christiania,	2 cks.		
Helsingfors,	8		
Caustic Soda —			
Abo,	4 cs. 1 ck.		
Helsingfors,	9 50 tins		
Stettin,	17 dms.		
Wyburg,	28		
Chemicals (otherwise undescribed)			
Abo,	80 cks. 5 cs.		
Amsterdam,	20 pks.		
Antwerp,	7		
Copenhagen,	20		
Christiania,	22 25 30 pkgs.		
Gothenburg,	10 5 1		
Genoa,	20		
Helsingfors,	62		
Hamburg,	1 172 28 pks.		
Marseilles,	10 6		
Naples,	23		
Rotterdam,	22 70		
Stettin,	94 215 pkgs.		
Stockholm,	10 6		
St. Petersburg,	100 4 100		
Stavanger,	8		
Cottonseed Oil —			
Antwerp,	100 c.		
Bremen,	20		
Gothenburg,	93		
Konigsberg,	233		
Rotterdam,	304		
estuffs (otherwise undescribed)			
Antwerp,	1 ck.		
Christiania,	2		
Dunkirk,	1 bl.		
Harlingen,	2 cs.		
Rotterdam,	2		

Guano —			
Dunkirk,	102 bls.		
Linseed Oil —			
Antwerp,	123 c.		
Bremen,	18		
Bergen,	14		
Copenhagen,	34		
Christiania,	572		
Christiansand,	48		
Drontheim,	246		
Hamburg,	215		
Rotterdam,	60		
Logwood —			
Hamburg,	76 bls.		
Manure —			
Dunkirk,	221 bls.		
Leghorn,	48 t.		
Naphtha —			
Copenhagen,	10 cks.		
Ochre —			
Antwerp,	10 cks.		
Stockholm,	10		
Painters' Colours —			
Amsterdam,	13 cks.		
Antwerp,	24 1 cs.		
Bremen,	1		
Bordeaux,	2		
Bergen,	1		
Christiania,	1 40 pks.		
Gothenburg,	7		
Genoa,	12 1		
Helsingfors,	2 12 dms		
Hamburg,	21		
Konigsberg,	8		
Leghorn,	3		
Naples,	19		
New York,	105		
Rotterdam,	9 2 1 pkge.		
Rouen,	1		
Stettin,	2		
Stockholm,	2 1		
St. Petersburg,	30		
Pitch —			
Antwerp,	476 t.		
Copenhagen,	25		
Helsingfors,	41 cks.		
Naples,	128		
Size —			
Christiania,	8 cks.		
Soap —			
Bremen,	5 cs.		
Copenhagen,	5		
Tallow —			
Abo,	13 cks.		
Gothenburg,	10		
Tar —			
Amsterdam,	6 cks.		
Antwerp,	6		
Gothenburg,	150		
Hango,	1		
Helsingfors,	1		
Rotterdam,	15 20 cs.		
Stettin,	1		
Wyburg,	2		
Tar Salts —			
St. Petersburg,	40 cks.		
Ulramarine —			
New York,	60 cks.		
Varnish —			
Amsterdam,	1 ck.		
Antwerp,	1 2 cs 2 dms.		
Copenhagen,	1 1 1 ble.		
Genoa,	2		
Hamburg,	1 7 14 bls.		

GLASGOW.

Week ending October 26th.

Alkali —			
New York,	147 t. 6 c.	£1,473	
Ammonium Sulphate —			
Demerara,	114 t. 9½ c.	£1,691	
Hamburg,	30	405	
Nantes,	60 1½	772	
Boracic Acid —			
Japan,	2 t.	£73 10s.	
Borax —			
Japan,	1 t. 3¾ c.	£35 16	
Christiania,	9		
Caustic Soda —			
Demerara,	3 t. 8 c.	£37 10s.	
Odessa,	29 4¾	£250	
New York,	99 19	900	

Coal Products —			
Pitch			
Valparaiso,	135 t. 8 c.	£180	
Gothenburg,	85 12½	220	
Odessa,	14 17¼	22	
Hamburg,	49 14	64	
Amsterdam,	450	630	
Santander,	1,100		
Quebec,	36 11	64	
Italy,	1,156 9	8,094	
New York,	143 15	556	
Danzig,	25	£21 10s.	
Tar			
Philadelphia,	61 t. 4 c.	£128	
Odessa,	65 12	101	
Hamburg,	50 cks.	20	
St. Petersburg,	600 brls.		
Danzig,	886	321	
Copper Sulphate —			
Antwerp,	1 t. 11¾ c.	£24	
Cottonseed Oil —			
Rotterdam,	5 brls.	£22	
Dyestuffs —			
Extracts			
Quebec,	8 t. 3¾ c.	£306	
Fustic Extract			
Quebec,	13¾ c.	£32	
Guano —			
Demerara,	28 t.	£300	
Linseed Oil —			
Demerara,	3 t. 5½ c.	£61	
Quebec,	10 4	95	
Manganese —			
Italy,	2 t.	£25	
Antwerp,	11 6½ c.	105	
Rotterdam,	2	20	
Manganese Oxide —			
New York,	10 t. 4 c.	105	
Manure —			
Demerara,	90 t. 16¾ c.	£878	
Paint —			
Valparaiso,	6 t. 1¾ c.	£140	
Japan,	173	173	
New York,	4 2¾	66	
B. Ayres,	16	123	
Painters' Colours —			
Demerara,	3 t. 6¾ c.	£50	
Calcutta,		154	
Paraffin Wax —			
Constantinople,	1 t. 1¾ c.	£29	
Odessa,	35 18¾	886	
Hamburg,	12	14	
Nantes,	6 10¾	185	
Gibraltar,	1	30	
Potassium Bichromate —			
Gothenburg,	13 t. 3¾ c.	£454	
Italy,	7 12¾	288	
Japan,	5 10½	208	
Antwerp,	17 1¾	664	
Rotterdam,	14 cks.	233	
Potassium Prussiate —			
New York,	9 t. 1 c.	£820	
Danzig,	3 brls.	60	
Salt —			
Valparaiso,	4 t. 1¾ c.	£40	
Soda —			
Valparaiso,	15 t. 19 c.	£45	
Soda Ash —			
Philadelphia,	75 t. 14 c.	£284	
Sodium Bichromate —			
Antwerp,	2 t. 11¾ c.	£83	
Italy,	13 9½	355	
Sulphur —			
Demerara,	10 t. 17 c.	£60	
Tallow —			
Amsterdam,	1 t. 14 c.	£49	
Gibraltar,	17¾	30	

TYNE.

Week ending October 21st.

Alkali —			
Hamburg,	1 t. 2 c.		
Aarhus,	2 10		
Rotterdam,	5 10		
Copenhagen,	6 4		
Alumina Sulphate —			
Antwerp,	9 c.		
Ammonia Alkali —			
Aalborg,	30 t.		
Odense,	3		
Barium Binocide —			
Dunkirk,	20 t. 11 c.		

Barium Carbonate —			
Hamburg,	106 t. 8 c.		
Blanc Fixe —			
Copenhagen,	5 t. 5 c.		
Bleaching Powder —			
Hamburg,	15 t. 9 c.		
Antwerp,	105 6		
Valparaiso,	14 11		
Christiania,	14 19		
Venice,	9 18		
Rotterdam,	26 15		
Copenhagen,	17		
Lisbon,	13 9		
Carbolic Acid —			
Bergen,	7 c.		
Caustic Soda —			
Hamburg,	13 t. 7 c.		
Antwerp,	4 18		
Venice,	20		
Copenhagen,	7 10		
Litharge —			
Christiania,	6 c.		
Rotterdam,	5		
Lisbon,	1 t. 3		
Magnesia —			
Hamburg,	7 c.		
Antwerp,	15		
Copenhagen,	2 t. 9		
Lisbon,	1 8		
Magnesium Carbonate —			
Copenhagen,	10 c.		
Salt —			
Valparaiso,	150 t.		
Soda —			
Christiania,	20 t. 4 c.		
Aalborg,	12 15		
Aarhus,	23 19		
Odense,	5		
Soda Ash —			
Hamburg,	26 t. 10 c.		
Bergen,	4 2		
Sodium Silicate —			
Savona,	11 t. 18 c.		
Sodium Sulphate —			
Copenhagen,	1 t. 4 c.		
Sulphur —			
Antwerp,	17 t. 10 c.		
Rotterdam,	10 10		
Drontheim,	50		
Superphosphate —			
La Rochelle,	540 t. 7 c.		
Tar —			
Hamburg,	19 c.		
White Lead —			
Pomaron,	12 c.		
Christiania,	4		
Zinc Ashes —			
Antwerp,	1 t. 8 c.		

GOOLE.

Week ending October 18th.

Chemicals (otherwise undescribed)			
Antwerp,	2 cks.		
Boulogne,	2		
Ghent,	7		
Hamburg,	40		
Coal Products (otherwise undes.)			
Boulogne,	104 cks.		
Calais,	24		
Dunkirk,	2 dms.		
Ghent,	1 8 cs.		
Hamburg,	19		
Rotterdam,	20		
Manure —			
Ghent,	200 bgs.		
Hamburg,	220		
Pitch —			
Antwerp,	379 t.		
GRIMSBY.			
Week ending October 21st.			
Chemicals (otherwise undescribed)			
Dieppe,	1 cs. 64 pkgs.		
Hamburg,	1 cs. 9		
Coal Products (otherwise undes.)			
Dieppe,	1 cs. 56 cks. 135 brls.		
Dyestuffs (otherwise undescribed)			
Dieppe,	1 ck. 1 cs.		
Pitch —			
Dieppe,	65 bgs.		

PRICES CURRENT.

WEDNESDAY, NOVEMBER 1st, 1893.

PREPARED BY MESSRS. HIGGINBOTTOM AND CO., 116, PORTLAND STREET, MANCHESTER.

The values stated are F.O.R. at maker's works, or at usual ports of shipment in U.K. The price in different localities may vary.

Acids :—	£ s. d.			Lime, Acetate (brown)	per ton	7 0 0
Acetic, 25 % and 40 %	per cwt.	7/6 & 11/3		" " (grey)	"	11 5 0
" Glacial	"	"		Magnesium (ribbon and wire)	per oz.	0 2 :
Arsenic S.G., 2000°	"	0 14 6		" Chloride (ex ship)	per ton	2 7 6
Fluoric	per lb.	0 0 3½		" Carbonate	per cwt.	1 17 6
Muriatic (Tower Salts), 30° Tw.	per bottle	0 0 10		" Hydrate	per ton	17 0 0
" (Cylinder), 30° Tw.	"	0 3 0		" Sulphate (Epsom Salts)	per ton	2 19 0
Nitric 80° Tw.	per lb.	0 0 1¾		Manganese, Sulphate	"	17 15 0
Nitrous	"	0 0 1¼		" Borate	per cwt.	2 12 6
Oxalic	nett	0 0 3¼		" Ore, 70 %	per ton	4 5 0
Phosphoric, 1756°	"	0 1 2½		Methylated Spirit, 61° O.P.	per gallon	0 2 0
Picric	"	0 1 0		Naphtha (Wood), Solvent	"	c 3 9
Sulphuric (fuming 50 %)	per ton	15 10 0		" Miscible, 60° O.P.	"	0 4 9
" (monohydrate)	"	5 10 0		Oils :—		
" (Pyrites, 168°)	"	3 0 0		Cotton-seed	per ton	23 0 0
" 150°	"	1 5 0		Linseed	"	22 10 0
" (free from arsenic, 145°)	"	1 6 0		Petroleum, Russian	per gallon	0 0 3½
Sulphurous (solution) S.G. 1025	"	3 0 0		" American	"	0 0 5½
Tannic (pure)	per lb.	0 1 2		Phosphorus (yellow)	per lb.	0 2 2
Tartaric	"	0 0 11½		" (red)	"	0 2 9
Arsenic, white powdered	nett per ton	13 5 0		Potassium (metal)	per oz.	0 3 7
Alum (loose lump)	"	5 2 6		" Bichromate	per lb.	0 0 4½
Alumina Sulphate (pure)	"	5 0 0		" Carbonate, 90% (ex ship)	per ton	16 10 0
Aluminoferric	"	2 10 0		" Chlorate	per lb.	0 0 8½
Aluminium	per lb.	0 3 0		" Cyanide, 98%	"	0 2 0
Ammonia, Anhydrous	"	0 1 :		" Hydrate (Caustic Potash) 80/85 %	per ton	21 15 0
" 880=28°	per lb.	0 0 3		" " (Caustic Potash) 75/80 %	"	20 10 0
" =24°	"	0 0 2½		" " (Caustic Potash) 70/75 %	"	20 0 0
" Carbonate	nett	0 0 3½		" Nitrate (refined)	per cwt.	1 2 6
" Muriate	per ton	23 0 0		" Permanganate	per cwt.	3 5 0
" (sal-ammoniac) 1st & 2nd	per cwt.	37/8 & 35/-		" Prussiate Yellow	per lb.	0 0 8½
" Nitrate	per ton	42 0 0		" Sulphate, 90 % (ex ship)	per ton	9 15 0
" Phosphate	per lb.	0 0 10½		" Muriate, 80 % (do.)	"	8 0 0
" Sulphate (grey) London	per ton	12 12 6		Silver (metal)	per oz.	0 2 7½
" (grey) Hull	"	12 11 3		" Nitrate	"	0 2 ½
Aniline Oil (pure)	per lb.	0 0 6½		Sodium (metal)	per lb.	0 3 1
Aniline Salt	"	0 0 5½		" Carb. (refined Soda-ash) 48 % .. nett	per ton	5 10 0
Antimony	per ton	45 10 0		" " (Caustic Soda-ash) 48 %	"	4 10 0
" (tartar emetic)	per lb.	0 1 0		" " (Carb. Soda-ash) 48%	"	4 10 0
" (golden sulphide)	"	0 0 10		" " (Carb. Soda-ash) 58 %	"	4 5 0
Barium Chloride	per ton	7 10 0		" " (Soda Crystals)	"	3 5 0
" Carbonate (native)	"	3 10 0		" Acetate (ex-ship)	"	16 0 0
" Sulphate (native levigated)	"	45/- to 75/-		" Arseniate, 45 %	"	11 0 0
Bleaching Powder, 35 %	nett	8 5 0		" Chlorate	per lb.	0 0 8½
" Liquor, 7 %	"	3 10 0		" Borate (Borax)	net, per ton	28 10 0
Bisulphide of Carbon	"	11 15 0		" Bichromate	per lb.	0 0 3½
Chromium Acetate (crystal)	per lb.	0 0 6		" Hydrate (77 % Caustic Soda)(f.c.b.) net pr.	tons	12 0 0
Calcium Chloride	per ton	2 5 0		" " (74 % Caustic Soda)	"	11 10 0
China Clay (at Runcorn) in bulk	"	17/6 to 35/-		" " (70 % Caustic Soda)	"	10 15 0
Coal Tar Products and Dyes :—				" " (60 % Caustic Soda)	"	9 15 0
Alizarine (artificial) 20 %	net per lb.	0 0 8		" " (60 % Caustic Soda, cream) (f.o.b.)	"	9 10 0
Magenta	"	0 3 9		Bicarbonate	"	7 0 0
Anthracene, 30 % A, f.o.b. London	per unit per cwt.	0 1 2		Hyposulphite	"	6 10 0
Benzol, 90 % nominal	per gallon	0 1 6		Manganate, 30%	"	16 0 0
" 50/90	"	0 1 7½		Nitrate (95 %) ex-ship Liverpool	per cwt.	0 9 3
Carbolic Acid (crystallised 40°)	per lb.	c 0 5½		Nitrite, 98 %	per ton	29 10 0
" (crude 60°)	per gallon	0 1 5		Phosphate	"	15 0 0
Creosote (ordinary)	"	0 0 2½		Silicate (glass)	per ton	5 7 6
" (filtered for Lucigen light)	"	0 0 3		" (liquid, 100° Tw.)	"	4 5 0
Crude Naphtha 30 % @ 120° C.	"	0 0 8		Stannate, 40 %	per cwt.	3 0 0
Grease Oils, 22° Tw.	per ton	2 5 0		Sulphate (Salt-cake)	per ton	1 2 6
Pitch, f.o.b. Liverpool or Garston	"	1 6 0		" (Glauber's Salts)	"	1 10 0
Solvent Naphtha, 90 % at 160°	per gallon	0 1 2		Sulphide	"	8 10 0
" Lucigen" and "Wells Oils	"	0 0 2½		Sulphite	"	5 15 0
Copper	per ton	42 2 6		Strontium Hydrate, 100%	"	8 10 0
" Sulphate	"	16 0 0		Sulphocyanide Ammonium, 95 %	per lb.	0 0 7
" Oxide (copper scales)	"	40 0 0		" Barium, 95 %	"	0 0 5½
Glycerine (crude)	"	13 0 0		" Potassium	"	0 0 7
" (distilled S.G. 1250°)	"	43 0 0		Sulphur (Flowers)	per ton	8 0 0
Iodine	nett, per oz.	0 0 9		" (Roll Brimstone)	"	6 10 0
Iron Sulphate (copperas)	per ton	1 12 6		" Brimstone : Best Quality	"	4 2 6
" Sulphide (antimony slag)	"	2 0 0		Superphosphate of Lime (26%)	"	2 7 6
Lead (sheet) for cash	"	10 17 6		Tallow	"	28 0 0
" Litharge Flake (ex ship)	"	13 0 0		Tin (English Ingots)	"	82 0 0
" Acetate (white ")	"	25 15 0		Tin Crystals	per lb.	0 0 6½
" brown ")	"	17 10 0		Zinc (Spelter)	per ton	16 17 6
" Carbonate (white lead) pure	"	20 0 0		" Chloride (solution, 96° Tw.)	"	5 15 0
" Nitrate	"	20 0 0				

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Notices.

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Communications for the Editor, if intended for insertion in the next issue, should reach the office not later than **Tuesday** evening.

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Reports, and correspondence on all matters of interest to the chemical and allied industries, home and foreign, are solicited. Contributors should condense their matter as much as possible, and send only one side of the paper, and in all cases give their names and addresses, not necessarily for publication. Sketches should be sent on separate sheets.

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Advertisements intended for insertion in the current week's issue should reach the office by **Wednesday morning** at the latest.

CURRENT TOPICS.

THE PHARMACIST ON WATER ANALYSIS.

RECENTLY a paper was read before the London Association of Chemists' Assistants on the examination of potable waters. The paper did not present any features of exceptional novelty or interest, but the discussion which followed the reading of the paper was highly instructive, in that it indicated the aspect in which water analysis is viewed by the pharmaceutical chemist; and it is on this account that reference is made to the matter in these columns, as the question is of importance to the reputation of the seven hundred and odd qualified analytical chemists who reside in Great Britain.

In regard to the performance of water analyses, pharmacists are upbraided for either passing them on to their wholesale houses or declining them. In the discussion it transpired that it was lamentable that such chances should be neglected when "the public were ready to give them (*i.e.* pharmacists) the opportunity of exercising their skill." There was no need, it appeared, for such neglectfulness, as with regard to the analysis of water, it could be performed satisfactorily at "a cost of a few shillings." This will be news to many professional analysts, and the only way we can explain the matter is by concluding that the time and "skill" of the pharmacist goes for nothing, and needs no recompense, his training period having presumably been devoted to cramming the Pharmacopoeia and nothing else. Men who have spent their time in gaining the experience which is essential to competency in water analysis think differently. The statement of cost is all the more amusing since the speaker and the author of the paper are champions of the Frankland process. If the public demand that their waters are to be analysed by this method, pharmacists will have a good opportunity of exercising their skill. There is as much sense in such a statement, as there would be in an analyst recommending his profession to take to making-up prescriptions, because you only want a few fluid measures, a big bottle of coloured water in front of a gas jet to cover your operations, and to then add a halfpennyworth of the drug, and charge as much for the *aqua dist.* as will bring the sum up to the customary shilling. As to the suitability of the Frankland process, we can only say that if it is so much more scientific, and therefore desirable, than any other process, it is strange that its light has so long been hidden under a bushel. Its present use is very limited. To our knowledge a witness in a sewage pollution case, acknowledged, under cross-examination, not so many months back, that he only knew actually of three persons who used the process, and they were himself, Frankland, and Frankland's son.

Evidently some of the gentlemen who took part in the discussion we previously referred to, also thought its use was not general, explaining that its adoption in certain Government departments was due to the official position held by

the originator of the process. Such a statement stultifies the supposition that the process was adopted solely on its merits, but then it is of course highly important that Government chemists, who can't detect sulphur in tobacco, or chloroform in spirit, should only adopt the most elaborate and highly scientific of processes, capable of giving results unintelligible to any but those intimately acquainted with the mysteries of the process.

THE DANGEROUS EMPLOYMENTS INQUIRY.

The Chemical Section of the London Chamber of Commerce seems much perturbed at the possibility of any new regulations dealing with trades in which dangerous chemicals are employed. There seems to be an opinion that the London industries need not be placed under any restrictions. Undoubtedly the conditions prevailing in the chemical industry of the North are totally different from those which exist in the South; but with the exception of the white lead factories in the North, the differences in the conditions which appertain, form a strong argument in favour of greater care being exercised where the products are widely used, rather than at the isolated points of production. The manufacture of soda ash, caustic, and bleach is not so murderous as generally supposed, and statistics show this to be so. It is in those parts where mercury, lead, and other poisonous salts are prepared, and matches made, that most damage is done by the dust from white lead and phosphorus, and the vapour of mercury,—and those parts lie largely in the South. The report of the committee inquiring into these matters will, however, we trust, appear shortly, and until then it is perhaps only fair to abstain from saying more till the committee have had their say.

THE EMPLOYERS' LIABILITY BILL.

The Standing Committee on Law having finished their mending operations, the above-named Bill came before the House of Commons last Wednesday. Though the bill is an advance in some ways, in that the doctrine of common employment has been done away with, still there is another point which remains unaltered. Compensation has, as before, to be obtained through the medium of litigation. This is after all not very surprising, seeing that lawyers had a large finger in amending the Bill. Unfortunately, therefore the actual compensation which falls to the lot of the litigant, is that which remains after the damages have been riddled through a hurdle by the lawyers. Trade union leaders may be furnished with another platform cry, but they have a nut to crack in the seventy thousand men who can show provision for compensation, ten times as good as that offered by the Government, and of which they are to be deprived. When those who pose as protectors of the people don't have things all their own way, there will be a much better chance of the working classes getting what they really wish for.

ELECTROLYTIC MANGANESE.—Manganese has been in use in the metallic form for a long time, having been obtained by the reduction of manganese dioxide, but it usually contained about 10 per cent. of impurities, notably carbon, iron, silicon, and phosphorus. Recently, Messrs. Königswarter and Ebell, of Linden, Hanover, took up the electrolytic production of metallic manganese and manganese compounds. The metal which they thus produce is chemically pure. In order to avoid the loss of this metal in the preparation of alloys by oxidation, to which the metal is very liable on account of its extremely fine state of division, alkaline chlorides and chloride of manganese is used in the crucible, salts which hinder oxidation by the air. The electrolytic preparation of this metal is patented, and, it is thought, will supplant very largely the old metallic manganese. We may have occasion to refer to this matter again ere long, and give some further details.

THE MERSEY AND IRWELL JOINT COMMITTEE

PAPER MAKERS' POLLUTION.

A MEETING of this committee was held last Monday at the Offices, Mosley-street, Manchester, at 11 a.m., to meet for paper manufacturers who had been invited to attend before the committee to show reason why proceedings should not be taken against them. The chair was taken by Mr. Ald. Thompson. Eight cases were also before the Committee which had, for various reasons, been adjourned at previous meetings. The following firms allowed three months to complete their works for purifying their waters: Messrs. Chadwick and Taylor, Salford; J. W. Mar Bolton; C. Turner and Co., Bolton; T. Wilkinson, Little L. The Ramsbottom Paper Mill Co.; Yates, Duxbury and Co., East Lancashire Paper Mill Co., Radcliffe; J. Wild and Sons, Cliffe; W. Broadbent and Sons, Bolton; The Grove Paper Mill, New Mills; Bibby and Baron and Lancaster, Ferguson and Co., De. The case of the Bury Paper Making Co. was adjourned till Dec 4th. Mr. J. Hargreaves, Collyhurst, did not avail himself of the opportunity to attend the meeting. The effluent from the works contained grains per gallon of total solids and gave off sulphuretted hydrogen. It was decided to make application to the Local Government for permission to prosecute. Sir H. E. Roscoe, M.P., was not present but made the following statement in a letter sent to the Committee: "I have not only seen and approved the analyses of the paper mill effluents made by Mr. Scudder, but have looked at the samples myself. With only one or two exceptions the whole of these are distinctly polluting liquids, and their entrance into the streams in this condition must be stopped. In many cases the greater part of the considerable sediment consists of vegetable fibre (paper pulp) in a fine state of division. It is quite possible, as I know from experience, to prevent almost entirely, by proper subsidence, aided by chemical precipitation, such solid matter passing into the streams. I therefore consider that it is absolutely necessary in the case of the paper mill on the stream to insist first on efficient tankage and suitable chemical precipitation, and secondly, that in the case of those works where is used for disintegrating the fibre, the liquors from the boiling together with at least the first wash water, shall be evaporated and calcined, whereby the alkali is regained, and river pollution from source prevented."

The position of most of the manufacturers showed that some was being done. T. Wilkinson contended that the water sent into the river by himself was better than what he took out of the river, being a maker of brown wrappings, pure water was not an essential, and no chemicals were used. The Bury Paper Making Co. had no wash waters. The wash waters were not settled, but they had presses, Messrs. Chadwick and Taylor had five settling tanks, but they were not all efficient. Messrs. C. Turner and Co. turned out a strongly alkaline effluent. They used no soda virtually, only lime. They were advised to consult a chemist, as the Committee did not go into the way in which the waste waters should be treated. Other firms, only using lime, turned out neutral effluents. Yates, Duxbury and Co. had evaporators all but completed, but bleachwater was not treated. Messrs. Bentley and Spicer, representing the East Lancashire Paper Mill Co., stated that they got turned out a decent effluent, but a sample of a very bad effluent was produced. This was owing to a mistake and was accounted for by two of the filters not having been working during the trial. The Committee warned the firm against making such mistakes in the future, or they would be prosecuted. Messrs. Lancaster and Ferguson did not appear, but sent a letter stating what was being done, with which the Committee were satisfied, pending a promise to complete the works in three months. In all, 12 firms undertook to complete their works in three months. One case was adjourned, and proceedings resumed in one other.

Among the other adjourned cases, G. Lawton and Sons allowed one month. Messrs. Leach, Bamford Bros. and Stott were given till January 1st, 1894 to come to an arrangement to turn out a satisfactory effluent. Mr. G. Clough did not appear, and as there was no communication advising an advance upon his position in October last, proceedings were resolved upon. J. Hargreaves, Rochdale, undertook to stop pollution in two months of his works. The case of R. Schofield and Sons was adjourned one month, pending further arrangements with the Rochdale Corporation. Mr. R. Ashworth, who wrote stating that the works were leased, and had been granted three months, pending a written promise to complete in that time.

CONSENT OF LOCAL GOVERNMENT BOARD TO PROSECUTION.

The Deputy Clerk reported that the Local Government Board gave their consent to proceedings being taken against the following firms: The Printing Co., The Hollingworth Printing Works, and J. Kerr and Hoegger, dyers, Newton Heath, Manchester.

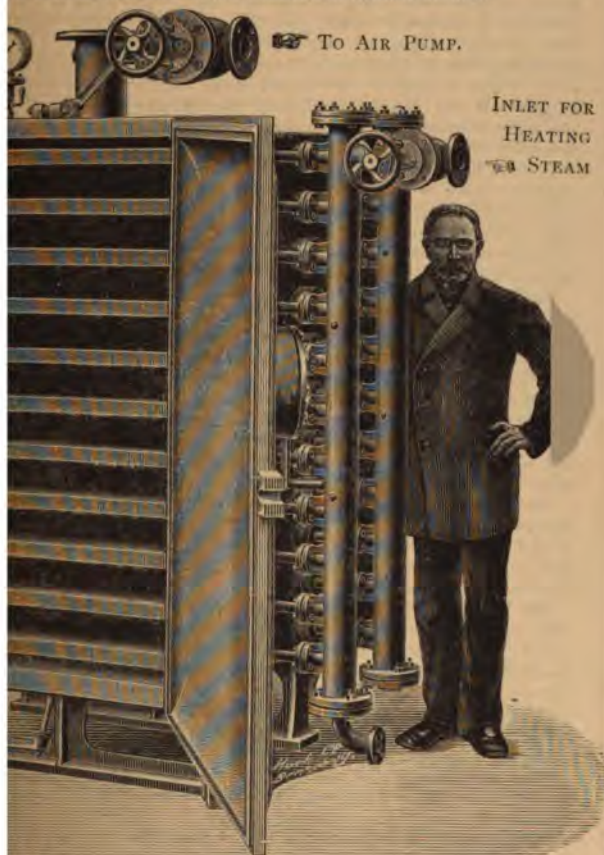
DRYING IN VACUO.

In the present day of hurry and competition it is no longer possible to proceed, in many cases, by methods which require much time to finish their end. The need of a quick drying apparatus has arisen with the development of various industries, which, moreover, require the adoption of an elevated temperature to hasten matters, on account of the articles being damaged or decomposed at a high temperature. Further, not infrequently manufacturers have to deal with the drying of substances which when heated in contact with air rapidly

consideration of these facts, it will, we think, be of interest to our readers to have brought before them some particulars concerning the drying of chemicals, colours, and extracts in a vacuum at a relatively low temperature.

An apparatus intended for drying substances which, owing to their resistance to heat, cannot be dried by ordinary means without alteration of composition, is being introduced into this country by the Vacuum Drying Company, of 39, Commercial-road, London, which is based upon a process by which the contained moisture is evaporated and without the substances under treatment being in the least damaged by the drying process. Also for such substances as can be dried without injury under a higher temperature this new process can be of great advantage be adopted, and with considerable saving in fuel, cost of plant, and working expenses.

The apparatus is being used on the Continent with great success for drying india-rubber, dyewood extracts, aniline colours, aniline salts, sugar, and dextrine solutions. For purposes of this kind an apparatus such as is shown in our illustration is most suitable.



consists of a cast, or wrought iron chamber hermetically closed by two doors. This chamber contains a number of hollow shelves, one above the other to be heated by steam or hot water, etc. The shelves are perfectly steam and air tight and receive and discharge heating medium through small pipes in the sides of the chamber, the temperature being regulated by means of valves. On the shelves or boxes the substance to be dried is placed on iron, copper, china, or any other material suitable to the substance under treatment.

The door of the chamber has been closed a high vacuum is maintained inside the apparatus by means of an air-pump. The heating

shelves having been supplied with steam or hot water, the water contained in the substance to be dried evaporates rapidly, even at so moderate a temperature as 104° F. in consequence of the boiling point being lowered under a vacuum. The vapour arising from the material under treatment is drawn off by the air-pump.

Materials, which under the old methods, it took days to dry, or which could not be dried at all, can as a rule be dried in this apparatus in a few hours, without the substances being in the least impaired through overheating. The charging of the chamber is simple and easy, the working very clean and reliable. Such an apparatus is not only suitable for drying the articles which have been named above, but is also suitable for all kinds of chemicals, pastes, glue, and bye-products. The cost of the steam required is not great, as the quantity necessary is small, and the exhaust from the air-pumping engine can be employed, though the cost is not large when live steam is used.

Where large quantities have to be dealt with this Company uses a rotary drier, which has been used with exceptionally good results for drying grains from breweries and distilleries, and is applicable to a number of other various substances used in, or produced in, the chemical and allied industries. In conclusion we may instance in favour of the faith which is placed in the efficacy and durability of this apparatus the following offer, which is made by the Company: They are willing to take dry grains in payment for their apparatus, or to erect the same at their own expense, pay for the dry grains the price which has hitherto ruled for wet grains, and hand over the apparatus to the brewery without further charge, after having paid themselves out of the difference between the prices of the wet and dry grains.

TIPS FOR TRADERS.

RICH OIL SHALE is separated from coal at the Dobra Stretcha Mines in Servia. The mines belong to Mr. S. Sibinovitch of Knajevatz. The Servian Government are endeavouring to foster the coal industry and have a chemical and metallurgical laboratory at Belgrade.

SULPHUR, Petroleum, and Saltpetre have been established monopolies at Macao by the Spanish Government.

The **PHOSPHATE INDUSTRY** has been virtually crippled by the hurricane which swept over Carolina State, U.S.A., not long since. Several of the principal works at Coosaw have had to suspend operations.

CHEMICALS, exported from France last year, were among the items showing an increase. The imports likewise were larger.

CAOUTCHOUC is the chief article exported from the Congo; last year, however, small quantities of palm oil and gum copal were exported.

INDIGO, Linseed, and Shellac were the chief articles which accounted for the increased exports from the N.W. Provinces of India last year. Calcutta does most of the export trade of the provinces, the trade with Bombay having been less than one-third that done with Calcutta.

TARIFF CHANGES.

There are from time to time many changes in the Customs' regulations abroad, which it is as well for those trading in chemicals, oils, paints, and raw materials to be acquainted with. The following are some of the most recent changes of interest to the foregoing:—

TRIONAL and TETRONAL, chemical products prepared by the aid of alcohol, are under a recent decision of the French Customs' authorities subject to a duty of 2fr. 40c. per kilogram.

MINERAL TAR, under the reduced tonnage dues at the Port of Havre, causes the vessel carrying it as a full cargo, or in a proportion of more than nine-tenths, to be subject to a due of 20 centimes per ton measurement.

TALLOW will, when imported into Spain, have in future to pay for the maximum tariff 1·3 francs per 100 kilos. instead of 0·65 francs as before; and for the minimum tariff, 1 franc per 100 kilos, instead of 0·5 francs.

WHITE LEAD, Ochre, and Umber, as well as all other colours in oils in metal tubes, will have to pay when imported into the U.S.A., a duty of 25 per cent. under paragraph 61 N Tariff.

VERMILIONETTE is also dutiable at 12 cents per pound under paragraph 57 N.T.

RECENT CUSTOMS DECISIONS.

AMMONIUM SULPHATE AND FERTILIZERS

IN the matter of the protest of Geo. E. Bartol & Co., Ltd., against the decision of the collector of customs at Baltimore, U.S.A., as to the rate and amount of duties chargeable on certain sulphate of ammonia, imported March 17th, 1893, the following is the opinion of General Appraiser Lunt:—

"We find that: The Geo. E. Bartol Co., Ltd., imported into the port of Baltimore, per steamer *Parkmore*, March 17th, 1893, 470 bags of sulphate of ammonia, upon which duty was assessed at one-half of 1 cent per pound under paragraph 10, N. T., and free entry is claimed under paragraph 600, N. T., as a substance expressly used for manure.

"This merchandise is known in trade and commerce as grey sulphate of ammonia and is manufactured from the ammoniacal liquors of gas works. These liquors are distilled and the ammonia gas is taken up in sulphuric acid and crystallized. In this process the article is produced in some instances nearly white in colour, and in others grey; the trade designations are white, good grey, and grey. They do not differ in value when containing the same amount of ammonia, which is the constituent of value affecting the price. Said merchandise is sulphate of ammonia, of a superior grade, suitable for use in the production of aqua ammonia, anhydrous ammonia, alum, etc.

"Sulphate of ammonia like that under consideration is extensively used in the manufacture of aqua ammonia, which is in general use for very many purposes, in domestic economy, in medicine and in the arts; in the manufacture of alum, and in the manufacture of anhydrous ammonia, which is largely used in ice-freezing machines and for refrigerating purposes in cold storage establishments and in breweries; also as a material in the production of explosives and chemicals. In addition to the uses aforesaid, sulphate of ammonia is used in the production of artificial manures and fertilizers, and the sulphate of ammonia covered by this protest was imported for that purpose and so used. It may be applied directly to the soil as a forcing manure or fertiliser, although practically and economically it is not so used, but is mechanically mixed and combined with other substances which furnish phosphoric acid and potash, and thereby a manure or fertiliser is produced containing in combination all the chemical elements necessary for perfecting plant growth.

We are unable to find whether sulphate of ammonia is used more largely in the manufacture of fertilising compounds than for all the other purposes mentioned, but are inclined to the opinion that the quantity so used is about equal to that used for all other purposes.

Sulphate of ammonia is by name specifically provided for in paragraph 10 N.T., without limitation or qualification. In order that sulphuric acid provided for in paragraph 5 might be admitted free when used in manufacturing artificial manures, Congress specially and denominatively provided for it in paragraph 728, this being done, perhaps, because of the second legal proposition contained at the end of the decision of the Supreme Court in *Arthur v. Lahey*.

For the free entry of numerous substances which are used as manures or fertilisers, Congress has made express provision by enumeration in the free list. In paragraph 600 a distinct class of fertilisers appears to have been provided for. The guano mentioned in paragraph 600 (re-produced from former tariffs) is doubtless excrementitious matter, such as was formerly imported from Peru, a substance which can be applied directly to the soil as a natural manure; and adopting as the test of qualification the rule of construction that where one or more articles of a class are mentioned by name in a paragraph, followed by a more general designation of other articles, it is to be assumed that the other articles are *ejusdem generis* with those articles mentioned by name, it would be supposed that the word "manure" would relate to barn or stable manure, and the more general term, "all substances expressly used for manure," would cover substances which in condition as imported are adapted and fit to be applied without manipulation directly to the soil, as guano and other natural manures are.

Chemicals are not similar to the natural manures mentioned in paragraph 600, for they are not, in their condition as imported, applied directly to the soil, but are combined with other substances to produce matter suitable for a complete plant food like natural manures. The most apposite definition of the word "expressly" to be found in all the dictionaries is "in a direct manner," and if this meaning is adopted a harmonious construction of the language of paragraph 600 is at once arrived at.

Unconstrained by judicial decisions we would adopt this construction, but the very language of paragraph 600, as contained in a former tariff, has been construed by the courts in a different manner. In the case of *Heller v. Magone*, the United States Circuit Court at New York held, concerning sulphate of potash, that although denominatively provided for in paragraph 70 of the dutiable list, yet if imported to be used in the manufacture of fertilisers paragraph 505 (now 600) is more specific than paragraph 70, as differentiating the portion expressly used for

manure, and the United States Circuit Court at Philadelphia in the case of *Schultz v. Cadwaladar* adopted the same views.

These decisions of the courts upon a question of law, no stand unreversed, and are authoritative. Upon our finding applying the law as interpreted by the courts in the cases cited protest must be sustained.

Legal Intelligence.

HIGH COURT OF JUSTICE.

QUEEN'S BENCH DIVISION.

Before Mr. Justice Charles and Mr. Justice Wright.
BAKEWELL, Appellant.—DAVIS, Respondent.

This case which was heard this week raised a novel and important question under the Adulteration Acts, namely, can a venditor which is undoubtedly poor, but which is not shown to have been so by any admixture of water, &c., and can only be inferred, very poor, be so poor as to be convicted of an offence under the Adulteration Acts? It was an appeal against a conviction under the Adulteration Acts of a farmer for selling milk "containing less than 26 per cent. of fat less than natural." It was proved that the prosecutor, procured a sample of milk from a churn of milk in delivery at a railway station in Birmingham from Bakewell North Staffordshire Dairy Company in pursuance of a contract. The churn had a label on it, "The contents of this churn are warranted to be new and pure milk." The public analyst, in whose presence the operations took place, proved that there were in the milk 26 per cent. of fat and a fraction of water, and that the total solids were 12 per cent. of which solids, not fat, were 8.66, and solids, fat, 2.69. It was stated that any milk in which the percentage of fat was less than 26 per cent., it was fraudulent, but he admitted that from the dryness of the season (this was in April last), poor feeding, or other causes, the milk from one cow might fall below that standard, and a known cow yield only 2.6 per cent. of fat. But he was of opinion that there had been no actual adulteration by mixture of water. The appellant gave evidence that the milk was from a dairy of 26 cows, that he had taken no cream from it, and ascribed the poor quality of the milk to the dryness of the season or the quality of the food, and that the evidence was given to show that the poor quality of the milk was due to natural causes. It was contended that, as there was no evidence of actual adulteration, and the poor quality of the milk might be due to natural causes, the defendant could not be convicted. The magistrates, however, were of opinion that the appellant, though he did not prove anything wrong in the milk, did not prove that the milk was pure or that the absence of fat arose from natural causes. They accordingly found that the milk was not of the nature, substance, and quality demanded, and that it had been sold by the appellant in breach of contract of sale to the prejudice of the purchaser, and they convicted him accordingly, but they stated a case to raise the question whether his conviction was correct in point of law.

Mr. Poland, Q.C. (with Mr. Wills), appeared for the appellant in support of his appeal, and urged that the magistrates had not found a fact that any cream or fat had been abstracted from the milk. He said, selling poor milk was, he said, no offence, unless it was so by mixture of water or withdrawal.

Mr. Jelf, Q.C. (with Mr. William Graham and Mr. Hugo), appeared for the prosecutor in support of the conviction. He urged that the certificate of the analyst was sufficient and showed grounds for conviction in stating that the milk was not pure and genuine.

The appeal was dismissed and the conviction upheld.

Mr. Justice Charles, in giving judgment, said the defendant was charged, it was quite clear, under section 6 as to selling something of the substance, nature, or quality of the article demanded. The analyst's certificate was to the effect that the milk contained less than 26 per cent. of cream than natural and usual, and less than a certain proportion of fat added, would be fraudulent. The observation was unauthoritative. It was urged that it rendered the certificate invalid altogether conveyed a charge of wilful abstraction. The magistrates, however, had expressly acquitted the defendant of that, and he did not rely on the analyst's statement as a statement of fact. It was a mere statement of opinion which the magistrates did not adopt or act upon. He did not think, therefore, that the certificate was altogether invalid. The main question was whether it was sufficient. In effect stated the results of the analysis. The result of the analysis was that the proportion of cream or fat in the milk was less than natural or usual. That was the proper course, and that was an offence against the statute had been committed.

Mr. Justice Wright concurred, observing that as to the certificate, it was only in cases of adulteration that it was necessary to enter into the proportion of ingredients as showing fraud.

SOCIETY OF CHEMICAL INDUSTRY.

OPENING MEETINGS. MANCHESTER SECTION.

day the 3rd inst. the opening meeting of this section was held at the Chemical Lecture Theatre of Owens College, when the Chairman, Mr. (Ivan) Levinstein, Esq., delivered his opening address, which was demonstrated with experiments. In the absence of Mr. H. B. Dixon, who welcomed the society to the College. There was a good attendance, numbering about 150 members and friends.

Mr. Levinstein dealt with the Development and Progress of Artificial Indigo and Indigo Carmine. At the outset, however, he reviewed the position of the chemical trade. Referring to the imports and exports during the last nine months, he pointed out that the exports of chemicals showed an increase of 10 per cent. as compared with the same period in 1892. The only drawback to the increase was that we must have converted part of our raw materials, formerly exported, into finished goods commanding a higher price, and if this assumption was correct it meant progress in the chemical industry. As to the fall of ammonia soda from £6. 5s per ton at half that price, a reduction which would make in the case of a single difference in profits of probably more than a quarter of a sterling, he remarked that, hard as this might be for one or two, there could be no doubt that the lower value of an article entering into general consumption must, especially if its price is artificially kept above its legitimate value for some years, advantage on a number of other branches of industry. We have regained the advantage we formerly possessed, viz., we once sold alkali cheaper than our neighbours. With regard to the production of Benzol, he made reference to the report of the United States General at Frankfurt-on-Main (*C. T. J.* No. 331, p. 193), in which most astonishing comparisons were made between the progress of the chemical industry in Germany and in Great Britain in the iron and steel industry. The fact that the Germans both in this industry and in the recovery of waste from their coke ovens was attributed to the superior chemical knowledge of the Germans. He did not approve of such exaggerated statements, and wished to point out that it was due to the fact that the Englishman that the Germans had been able to work with native ores, as it was owing to the introduction of the Bessemer process, the invention of Thomas Gilchrist, that such advance had been made.

Again, in connection with the recovery of bye-products from the chemical industry, in the first instance the recovery of these products from a chemical as an engineering question, and the progress of the facts, inasmuch as France was really the first to recover these bye-products, then England followed, and Germany profited from their experience, and so it further improvements did adopt them to a much larger extent than we had done. No doubt our coke oven proprietors would do so, as the saving to this country would amount to several millions of pounds annually. It was satisfactory to know that a well-known engineer had lately been putting up in the North recovery plant in accordance with his own latest improvements, and an advance upon the German ovens even.

Coming upon the coal-tar colour industry in general, he then reviewed the patents connected with the production of artificial colours. After describing the patents of Baeyer, Drewsen, and Anilin. u. Soda Fabrik, Mr. Levinstein proceeded to illustrate the various processes which had been described. He showed that phenyl-glycine was dissolved in 70% anhydrous sulphuric acid, giving a yellow solution, which, upon being poured over a piece of white paper, showed at once, very clearly, the well-known colour of indigo. The resulting liquor was collected, neutralised, and then dyed with the product in a few minutes. In connection with the use of 70% anhydrous sulphuric acid, Mr. Levinstein substantiated the interesting and highly useful fact that while sulphuric acid, containing from 30 up to 65% of SO₃, was solid, 70% acid, as by diluting some 70% acid with water, he succeeded in obtaining a solid acid of about 40%.

The process consisted in dissolving ortho-nitro-benzaldehyde in dilute caustic soda. Upon so doing a condensation product, namely ortho-nitro-phenyl-lactone, is formed, which, with the addition of more alkali, is converted into indigo. Unfortunately so much of soda is required for the latter step that the bath rots the dyer. The ketone, however, was difficultly soluble, and to obtain a recently patented process, took to start with this same ketone rendered it soluble by treatment with bisulphites, thereby obtaining a soluble product at much lower cost. Articles passed through a bath of this soluble ketone and then through a bath of caustic soda, once dyed a deep blue. Various patterns were produced by printing pieces through some caustic, while a large piece of hank of yarn were also dyed. Subsequently about half a pound of indigo carmine was produced which had been prepared during the lecture.

Mr. Levinstein expressed his great regret that this country had had so little part in the work that had enabled chemists to achieve these wonderful results. He had frequently pointed out the need for training chemists of the highest class, and he was glad to see that efforts were at last being made in various directions to improve our position. As successor to the late eminent professor of chemistry at the Owens College a gentleman had been appointed who had already distinguished himself by a number of very valuable researches in organic chemistry, and before long that great educational institution would be in a position to place at the disposal of Professor Perkin, jun., a laboratory which would be exclusively devoted to research work in organic chemistry. He was unable to see that the fact of a few boys passing from the Board school direct to the University, even with distinction, selected out of over 70,000 attending schools, was any proof of efficient teaching, and, speaking generally and without reference to any special school, he was of opinion that the obtaining of a few scholarships, exhibitions, or medals was no criterion of the efficiency of any school so long as cramming or prize-hunting was the order of the day, and so long as the individual training of the average boy was neglected for the purpose of nursing a few gifted scholars. With regard to Technical schools, they hoped in Manchester to have shortly, a school second to none in the world. Let such schools as had the most competent teaching staff and the most perfect appliances at command teach the most advanced science subjects, whilst those which had not ought to confine themselves to thoroughly and efficiently preparing our youths for the advanced work carried on by the former. There must be a give and take in regard to this, and he believed that even our Technical School and similar institutions might with advantage dispense with certain subjects at present taught, and leave them to those whose special province it ought to be to teach them. (Applause.)

Mr. George E. Davis, in moving a vote of thanks, said he had great pleasure in moving a vote of thanks to Mr. Levinstein for his admirable paper, which was not only admirable on account of the interesting statements to which they had listened, but also in showing how a paper ought to be illustrated. Prof. Perkin, jun., seconded, and the vote was heartily accorded in the usual manner.—Mr. Marshall afterwards read a paper upon a "Newly arranged experimental dye bath."

LIVERPOOL SECTION.

The opening meeting of the 1893-94 session, was held on Wednesday, 1st inst., at the Chemical Laboratories, Brownlow street, when the chairman of this section, Mr. Eustace Carey, delivered his opening address on, "Some observations on the organisation and management of a Chemical Works." After referring to the relative advantages to be gained in large as compared with small works, Mr. Carey dealt with the good results that would in his opinion follow by the introduction of an eight hours working day in chemical works, and gave a series of most interesting statistics of the success that had attended its introduction in several works, leading to increased efficiency without increasing the cost of production. The early morning hours were in his opinion of little value, for the workmen came before they had had any food, and were unfit for really good work. In the concluding portion of the address, Mr. Carey referred to the health of workmen in chemical works, and gave instances of the gross misstatements that reached the public on this score. As he clearly showed, the sickness amongst the workmen was not above the average, and statements to the reverse effect were entirely due to ignorance. In proposing a vote of thanks, Mr. E. K. Muspratt expressed his complete accordance with Mr. Carey in his remarks concerning the advantages of a shorter working day, and also in respect to the prejudicial misstatements as to the health of the men in the works.—Mr. Henry Brunner, the retiring chairman, seconded the vote, which was carried by acclamation. Subsequently, the chairman called upon Mr. T. W. Stewart, of Newcastle, for his views on the subject of the address.—Mr. Stuart stated that in his opinion the eight hours day involved in many cases an increased cost, amounting in some cases to 40 per cent. He also gave some interesting results in regard to the health of workmen, which amply corroborated Mr. Carey's statements.

GLASGOW AND SCOTTISH SECTION.

The first meeting of the new session was held in Glasgow, Tuesday, Nov. 7. Mr. Charles A. Fawsitt, chairman of the section, presided. He referred to the coming general meeting of the society in Edinburgh, and remarked that as the occasion was likely to add considerably to the number of East Coast members, one important result might be the formation of an independent section there with Edinburgh as its constant place of meeting. The Scottish section had hitherto been one of the most successful of the society's divisions, and it was desirable that the position should be maintained. With regard to the session now entered on, the Secretary had promise of papers for all the Glasgow meetings; but two of the Edinburgh meetings were still uncovered. Last session's agitation for reform in the mineral oil flash point regulations would be continued during the session, and, if possible, brought to some favourable issue. The grave anomalies burdening the British patent laws were also to be systematically attacked. Mr. Fawsitt then

proceeded with his opening address, on "Forty Years of Chemical Progress." He took as his starting point the International Exhibition of 1851, at which the show of chemical specimens was very meagre, consisting rather of drugs than of industrial chemicals. By the time of the Exhibition of 1862 considerable progress had been made, but it was borne in on the observer—and this held good up to the present day, also—that the progress was due rather to the chemical engineer than to the chemist—rather to cheapened methods of production than to new chemical processes. Cost was the only element of difference between the bichromate and prussiate of potash samples of the 1851 Exhibition and those manufactured in 1893. The almost total absence of organic compounds from the 1851 Exhibition specially impressed him, and he noted with interest, that in the Exhibition of 1862, the exhibits of aniline dyes formed the chief source of attraction in the chemical section. For the West of Scotland he claimed a high position in the march of chemical industry, and referred, in passing, to the period when in London, and elsewhere throughout England, soda crystals were familiarly known as "Scotch soda." The district had taken its part in the great revolution of colours brought about within the period, but, with the other chemical centres of Great Britain, it had to share the reproach of having permitted Germany to gradually eat itself into so large a monopoly of production in certain chemicals. Here, in the West of Scotland, there was a complete absence of such manufactures as those of aniline dyestuffs and pharmaceutical preparations, and that certainly was a vexatious circumstance. Fitting mention was made of the astounding march of shale distillates, under the discoveries and enterprise of Jas Young at first, and subsequently on the scope of a national industry. Two other names were worthy of prominence in such address, viz., Wm. Murdoch of coal gas eminence, and Chas. Macintosh the first maker of prussiate of potash in the district and the inventor of numerous chemical processes, amongst others that of the waterproofing which bears his name. Notwithstanding the great progress made, we were still behind our foreign rivals, and the remedy at the same time rested with ourselves. In organic chemistry teaching we were behind. There was also too much trusting to "rule of thumb" amongst our manufacturers, and thus dispensing with the aid of the technical chemist. Mr. Fawsitt's address was listened to with the closest interest throughout.

THE OWENS COLLEGE CHEMICAL DEPARTMENT.

THE chemical laboratories of the Owens College are again full to overflowing. The present buildings, situated along Burlington-street, were erected in 1872, and were designed to contain 100 students, providing each one with a separate working bench and cupboard in which to lock up his apparatus. The two main laboratories are each 70ft. long, 30ft. wide, and 29ft. high. Besides these large rooms, there is also a smaller laboratory in the basement, which was originally intended for the use of evening students. Three years ago it was found necessary to build a new lecture-room for the classes in organic chemistry, and at the same time two small rooms for the use of advanced students were added to the building. This addition, however, gave but a trifling increase of accommodation compared with the increase in the number of students. At the present moment there are 174 men actually working in the laboratories in the College, while 18 women students are taught by the College staff in a laboratory lent by the High School for Girls in Dover-street. Every possible device has been resorted to in order to meet the growing demand. Many of the benches in the junior laboratory have been divided into two, and the basement laboratory is filled with day students. For many students no cupboards are available; movable boxes have therefore been called into requisition to hold their apparatus. The Professor's private laboratory and the working places of the rest of the staff have been encroached upon, and the department has, for the first time in its history, been reluctantly compelled to refuse applications for admittance to the laboratories. A few months ago it was proposed to build a special laboratory for organic chemistry in memory of the late Professor Schorlemmer, and for this purpose £2,000. has been subscribed. But during the past session it became evident that the extension proposed by the Schorlemmer Committee would be insufficient to meet the immediate wants of the School of Chemistry. The Council has therefore had plans prepared for a new laboratory on the main floor, 60ft. long by 30ft. wide, and a lower laboratory beneath it 40ft by 30ft., with necessary storerooms. The cost of such a building is estimated at £4,000. The deficiency of £2,000. remains to be supplied.

COMPOSITION OF THE SOLAR ATMOSPHERE.—Professor Janssen, the astronomer, has discovered from spectroscopic experiments made at the new observatory on Mont Blanc that there is no oxygen in the solar atmosphere. He therefore concludes that the general influence of the sun will be exerted on this planet for aeons to come. Professor Janssen is confident that Jupiter and Saturn will have time to evolve, even as this earth has done.

MATHEISON'S AMERICAN ALKALI WORKS.

MR NEIL MATHEISON, who formerly was connected with the works of Matheison and Co., Widnes, is starting an alkali bleaching powder works in America, under the name of the Matheison Alkali Works. When the works at Widnes were sold to the United Alkali Company in 1890, Mr. Matheison was one of the few men who refused to enter into an engagement not to compete with the company for a term of years, and also required cash for his taking no shares in the United Alkali Company.

The new works in the United States at Saltville are situated on property of about 10,000 acres in extent, underlaid by deposit of rock salt and having an available surface of excellent limestone. There is plenty of good timber, and the Monticello coal fields will supply fuel at fairly cheap rates. All conditions, except climatic ones, are favourable for cheap production. The climate is not suitable for the production of bleaching powder because of cold winters and hot summers. Temperatures are such that the importance in bleach making, since the chemical reactions which place are affected thereby.

In order to overcome the difficulties caused by excessively high temperatures, Mr. Matheison is causing great caves to be excavated on the sides of the mountain against which the works are being constructed, and the bleach chambers are to be erected in these excavations. This is ingenious, but it will, on the other hand, cause some difficulty which will require mechanical contrivances to overcome them.

There is at present no bleaching powder made in the United States, and there is an enormous consumption. At present prices it is undoubtedly profitable to manufacture it at Saltville, even if the cost is considerably more than in England. But bleach is not a luxury article, and the average freight from Liverpool to New York is much exceed 10s. per ton. Therefore the United Alkali Company, if it desires, can put down the price of bleach in the United States materially and still make a big profit.

THE USES OF CARBORUNDUM.

AS stated a few weeks ago, we now intend to deal with a few of the uses to which carborundum is being and can be put, in accordance with our remarks on the composition and properties of this compound (C. T. J. 330, p. 181). From the experiences of the Carborundum Company, this crystallized carbide of silicon can be produced at a rate of 150 pounds on the average in a day of 24 hours. The production is found to be not more than half as much as by the old method of mining and preparing corundum. In order to purify the crude material as it comes from the furnace after preliminary crushing to extraneous matters the partially separated crystals are put in tanks and treated with dilute sulphuric acid to remove all iron, which is detrimental in the subsequent firing to which the material is subjected during its manufacture into grinding wheels.

The chief use to which carborundum can be put is for grinding purposes. The extent to which emery wheels are employed in mills, and shops, has grown most astonishingly, and it is found that carborundum should in a large measure supplant the emery wheels, on account of its higher efficiency. It has been found that twice as much work can be accomplished by a brass valve with $\frac{1}{2}$ oz. of carborundum in one day, than could be accomplished with any amount of emery. Against this there must be set the difference in price between the two articles, and also the cost of the workman, as a careless man would waste too much of the material in the use of carborundum possible.

For glass-cutting, tests have shown that the same amount of work can be accomplished in one-quarter the time that it could be accomplished with emery, and a saving of labour amounting to 25 per cent can be effected when working on hard steel or chilled iron. Carborundum can be substituted for diamond dust in polishing diamonds, carborundum has been successfully tried. A new lap, and therefore absolute substitute for diamond powder, was fed with carborundum powder, and twenty minutes restored the facet of a damaged diamond, much to the surprise of the sceptical operator. It is at present used in diamond polishing establishments in New York, though it is not as efficient as diamond powder for the first cutting and facing of diamonds. Although a compound bearing the formula SiC_2 has been independently prepared by Schützenberger, no mention is made of its being prepared in a crystalline form, which is one of the features of carborundum. In addition to this it transpires from the date of Schützenberger's communication to the Academy of Sciences that it is three months later than the date on which Nicola Tesla exhibited a lamp fitted with a carborundum button: which constitutes the use to which this compound has been put. The application of the properties of infusibility and incombustibility have yet to be developed.

CENSUS OF CHEMICAL MANUFACTURERS.

A bird bulky volume of the 1891 Census of England and Wales, dealing with the occupations of the people, some interesting facts are given regarding Chemical and Alkali Manufacturers. At the date of the Census there were 21,483 persons employed of whom 1,775 were females. Compared with 1881, there was an increase of 5,362 persons engaged in these industries. The total of 21,483 persons is distributed as follows:—

Employers	1,131
Employed	19,410
Working on own account.....	263
Others (no statement)	679

Looking into the returns it appears that no less than 224 foreigners are described as chemical or alkali manufacturers, as against 58 in 1881. The nationalities represented were: Germany, 86; Poland, 22; Holland, 8; Austria, 7; and various other countries, 11.

The least interesting tables given are those showing the distribution of chemical and alkali manufacturers in our large towns, of which 15 are tabulated with a population of over 50,000 persons. Space will not permit of these being set forth at length. Appended, however, is a list of those towns in which not less than 150 chemical and alkali manufacturers were resident at the date of the census:

London	2,178	Hull	318
St. Helens	1,748	South Shields	316
Manchester	602	Leeds	247
Liverpool	592	Liverpool	187
Birmingham	577	Birmingham	159
Huddersfield	411	Huddersfield	153

It is worthy of note that the number employed in these industries in 1891 of St. Helens shows an increase of 656 persons since 1881. In addition, it is curious to observe that 4 blind and 5 deaf and dumb are employed in the chemical and alkali trades.

THE GAS SUPPLY OF LONDON.

The quality of the gas supplied to the City of London for the week ending October 21st, 1893, was good. According to the report of Mr. W. J. Dibdin, chemist and superintendent gas examiner to the London County Council, the tests made at various testing stations showed no deficiencies in illuminating power. The following figures have been prepared from the analysis and show the average composition of the gas calculated on a test:—

Company.	No. of districts tested.	Illuminating power (in stand. sperm candles).	Sulphur. Grains in 100 cb. ft.	Ammonia. Grains in 100 cb. ft.	Sulphuretted hydrogen.
		Mean average.	Mean average.	Mean average.	
London and Coke Co.	12	16'36	10'04	0'25	Nil.
Metropolitan Gas Co.	6	16'36	11'05	0'50	Nil.
Eastern Gas Co.	2	16'30	6'70	0'60	Nil.

The quality of the supply for the week ending October 28th was also good. There were no deficiencies in illuminating power. The following figures have been prepared as above:—

Company.	No. of districts tested.	Illuminating power (in stand. sperm candles).	Sulphur. Grains in 100 cb. ft.	Ammonia. Grains in 100 cb. ft.	Sulphuretted hydrogen.
		Mean average.	Mean average.	Mean average.	
London and Coke Co.	12	16'37	10'52	0'29	Nil.
Metropolitan Gas Co.	6	16'46	12'25	0'43	Nil.
Eastern Gas Co.	2	16'25	7'50	0'50	Nil.

The standard gas supplied by these companies should have an illuminating power of 16 sperm candles, and contain not more than 22 grains of sulphur and 4 grains of ammonia per 100 cub. ft. of gas, on an analysis of three days, with a pressure of one inch between sunset and sunrise, and six-tenths of an inch between midnight and sunset.

MR. GEO. RICHARDS & CO., Limited, Broadheath, near Manchester, have received an order from the Admiralty, for Chatham Dock, for one of their side planing machines, carrying two indestructible arms, to plane 40in. wide and 15ft long, and a slot drilling and key cutting machine.

Correspondence.

* * We do not hold ourselves responsible for the opinions expressed by our correspondents.

CARBORUNDUM.

(To the Editor of *The Chemical Trade Journal*.)

DEAR SIR,—In a recent issue of your *Journal* (No. 330) you gave a notice of Carborundum, a crystallised carbide of silicon. Would you through your paper kindly inform me if the American manufacturers of it have an agent in this country, and where he is to be found; or, in the absence of such an agent, the address of the Carborundum Co., U.S.A. ?—Yours, &c.,
SILICON.
London, Nov. 8th, 1893.

Reports of Companies.

THE ALUMINIUM COMPANY, LIMITED.

The sixth annual meeting of the shareholders of this company was held last week at the Cannon-street Hotel, under the presidency of Mr. G. W. Balfour, M.P. After referring to the actual financial position of the Co., the Chairman stated that hardly one of the processes with which they started was now in use at Oldbury, and this would indicate to them the difficulties against which the Board and the management had had to contend. The title of the company had, in fact, become a misnomer since they no longer produced aluminium. They had developed the trade in sodium, partly by finding new uses for it, and partly by reducing the cost of production; and one material they manufactured—peroxide of sodium—was a completely new commercial product, in which they already did a very large business. Their new electro-chemical process, which was invented by their colleague, Mr. Castner, was for the manufacture of caustic soda and chlorine direct from common salt by electrolysis. The process turned out the material in a state of chemical purity, and, they believed, at a very much lower price than at present, and it reached in efficiency very close to the margin of what was theoretically possible. Sir Henry Roscoe, M.P., seconded the motion, remarking that he could endorse the chairman's statement, that in future the mode of making sodium would be by a process similar to that which the company now had in hand. The motion was unanimously adopted. A resolution was afterwards passed for reducing the capital from £400,000. to £80,000. by cancelling capital which had been called up, but was unrepresented by available assets, to the extent of £4. a share, and reducing the nominal value of the shares to £1. each.

DIVIDENDS.

The Rosario Nitrate Co.—This Company has declared an interim dividend of 2½ per cent., payable on November 8th.

Kellner-Partington Pulp Company.—A dividend for the half-year ending 30th September last is proposed at the rate of 7 per cent. per annum, making, with the interim dividend paid in May last, a total dividend for the year of 6 per cent.

International Water and Sewage Purification Co.—The directors have declared a dividend of 7 per cent. on the preference shares for the year ended June 30th, £2,000. being placed to the reserve fund and £346. carried forward.

The Liverpool Nitrate Company, Ltd.—The directors of this company in their report for the year ended June 30th, 1893, state their intention of paying 10 per cent. on December 31st next, making in all a dividend of 20 per cent. The reserve fund has been increased to £20,000.

The Colorado Nitrate Company, Ltd.—The directors in their report for twelve months ended June 30th, 1893, a dividend of 3 per cent., payable on December 31st next, being at the rate of 6 per cent. for the year. The reserve fund has been raised to £20,000.

MURIATIC ACID FOR LIME JUICE.—In mistake for lime juice a Brighton woman named Gunn, aged 21, drank some hydrochloric acid, to the effects of which she succumbed recently. The mistake might easily be made, and is a much more reasonable one than mistaking it for whisky, as was the case a short time ago.

THE SHIP CANAL AND THE HULL TRADE.—Messrs. Wilson, Sons, and Company have made arrangements to run a line of steamers direct to Manchester through the Ship Canal. This means the diversion of trade from Hull, and is causing much concern in commercial circles there. The North-Eastern Railway Company are preparing to make extensive improvements with a view to keep trade at Hull Docks, and already a scheme is under consideration which will involve the expenditure of thousands of pounds.

Trade Notes.

A WORD ON KIESELGUHR AND "KUHLOW."—Owing to the run on a recent number of our JOURNAL containing an original article on on Kieselguhr, we have been compelled, with regret, to give to enquirers an answer to the effect that we had no more copies of that issue for disposal. For their consolation, however, we are glad to be able to refer them to *Kuhlow's Review* for Nov. 1st, 1893, where they will find the article reproduced. Though the source of information is in no way acknowledged, no scruples need exist as to the authenticity of the article, as it is identical with that published in our columns recently, and the "our laboratory" referred to is none other than that in which the experiments upon which the article was based were conducted. Those who wish, therefore, can now obtain a reprint of the article, and the foregoing will no doubt allay any fears they might have that they had not obtained the "genuine article."—[Ed. C. T. J.]

TUNGSTATES IN DETERGENTS.—It is proposed to employ tungstates of alkalis as an ingredient in detergent compounds. For instance, tungstate of soda can be added to ordinary soap in the course of its manufacture. The idea is patented.

JAVA INDIGO.—The position of this market is considered favourable to buyers, Messrs. Bunge and Co., of Rotterdam, reporting that their actual stock amounts to about 1,070 chests, and as it is generally believed that the imports of the actual crop have ceased, no further supplies are expected till the end of March, 1894, when the first cuttings of the new crop will arrive. Fine is offered at 7s 1d. to 7s 6d.; fine middlings at 6s. 8d. to 7s.; and good ordinary, 5s. 6d. to 6s. 6d.

BRITISH AWARDS AT CHICAGO.—We learn that the following firms have received awards in the British Section of the Manufacturers' Building at the World's Fair:—Messrs. Brunner, Mond and Co., Limited, Northwich, for alkali and bleaching powder; T. Biggs, for sheep dip; Messrs. F. C. Calvert and Co., Manchester, carbolic acid and carbolic preparations; Messrs. Lever Bros., Port Sunlight, for soap; and the United Alkali Co., Limited, Liverpool, for alkali, potash, bleach, and fertilizers.

THE ALLEGED PRECIPITATED CHALK FRAUDS.—The charges against Messrs. Levermore Bros. were heard recently before the Common Serjeant at the Central Criminal Court, London. Counsel for the defendants stated that while not defending what had been done to increase the sale of the precipitated chalk, over £300. of the money obtained had been refunded, and consultation with counsel for the prosecution (Mr. Charles Matthews) had resulted in an agreement to the effect that the defendants should be released on substantial recognisances. In accordance with this arrangement the Common Serjeant released the defendants on their entering into recognisances of £100. to come up for sentence if called upon.

ARTIFICIAL MARBLE.—With a view to colouring artificial or natural stone so as to imitate marble, a patent has been taken out which proposes to impregnate natural gypsum with solutions of crystallizable salts such as alum, sulphate of iron, and manganese or chromates. To accomplish this the partially-dried gypsum is first saturated with a solution of potassium sulphite, which assists the penetration of the other solutions, acting as a vehicle. Suction is also employed to fill the pores of large blocks. The action depends upon the oxidation of the sulphite, which combines with the other metallic salts forming various colours, chrome-alum, for instance, giving a deep green.

THE DECLINE IN SALT SHIPMENTS.—The decline in salt exports from Liverpool to the East Indies still continues, and up to the end of October, 1893, there is a falling off of almost twenty per cent. as compared with the first ten months of last year, the figures being—1892, 206,127 tons; 1893, 168,524 tons. As regards prospective shipments (November sailings) there is an even worse tale to relate, Hamburg again being in front of Liverpool with 12,055 tons against 10,300, whilst Middlesbro' is booked for 3,100 tons, and Bremen for 2,000 tons.—*Liverpool Journal of Commerce*

KILVERT'S LARD.—In connection with the case of *Laidlaw v. Willson* reported in these columns last week, the solicitors of Messrs. Kilvert and Sons have addressed a letter to the Durham County Council stating that:—"Our clients have no doubt whatever as to Mr. Willson's bona fides in stating that the lard in question was theirs, but they equally have no doubt that lard containing 7 per cent. of beef stearine was not in fact their lard, and they accordingly did not take up the defence. Our clients have always defended any attack upon their lard without cost to a customer, and intend to continue to do so. The case having, up to the present, been decided upon an issue other than the purity of our clients' lard, they instruct us to inform you that in accordance with the spirit of their guarantee they invite you to adopt proceedings against them, either in connection with the present case or in connection with any lard of theirs sold in your county, and they will give every assistance to the proceedings which you may think proper to adopt."

ANTI-SULPHURIC ENAMEL.—In answer to several inquiries we have had for an acid resisting enamel, we are pleased to inform those interested that Messrs. Griffiths Bros. and Co., of Macks Road, Bermondsey, London, are makers of an enamel which preserves wood and metal from acid fumes.

GILTIATH WROUGHT-IRON COILS.—Twenty large coils of wrought-iron tubes have just been delivered at Hebburn, near Newcastle-on-Tyne, for the steamer *Perthshire*, which Messrs. Hawthorn, Leslie and Co. have been building, and which, by the way, is to be fitted with some splendid refrigerating machinery by the Little British Refrigeration Company, Limited, of London. These coils of tubes were constructed by Messrs. Lloyd and Lloyd, the well-known Birmingham tube-makers. They are believed to be the largest coils of this kind that have ever been produced in this country. Each coil measures 33 feet long, by 6 feet high, and contains approximately 1,500 feet of iron tubing, in one continuous length without a joint. They are made from wrought-iron tubes of the best quality, and were tested at a very high pressure before leaving the works. The railway company had to provide special trucks to enable them to pass through the tunnels and they also sent an inspector through with the train to ensure safe delivery. The coils formed, indeed, quite a train load by themselves. A similar set of coils is in course of manufacture by the same firm for another ship which has been building in the same yard. The call for tubes of a very large size is increasing for many purposes, not only in the marine engineering world, but also for compressed air and other services. This fact has already caused some of the Midland tube-making firms to order more powerful machinery.

COUNSEL'S RETAINING FEES.—For some time past there has been some divergence of opinion on the practice of retainers to counsel. To do away with this doubt, rules have been issued by the Incorporated Law Society and approved by the Attorney General on behalf of the Bar. It is not generally known to the public that the services of a counsel, however eminent, may be secured by means of a general retainer for the trifling payment of the sum of five guineas. This must not be understood to mean that by paying Sir Charles Russell, for example, the sum of five guineas a man would be able to obtain his services. The effect of a general retainer is that if a counsel who has accepted a general retainer should be offered a special retainer or brief by the opponent of the party who has given such general retainer, the person giving the general retainer is entitled to notice before the offered retainer or brief is accepted. Subject to certain rules, a general retainer lasts for the joint lives of the client and counsel. But if a man gives a general retainer to counsel, and when he has a case passes him over, the general retainer is forfeited. The fee for a special retainer, which cannot be given until after the commencement of an action or proceeding, and which gives the client a right to the services of the counsel during the whole of that particular action, is in all cases one guinea, and that whether the counsel is the most eminent at the bar or the briefless junior just called. A separate general retainer must, however, be given to cover business before Parliamentary Committees of either House, and the fee in that case is 10 guineas. For a special retainer in Parliament the fee is five guineas. The rules do not (except in one or two not very material particulars) alter the existing practice.

Market Reports.

TAR AND AMMONIA PRODUCTS.

Benzol is still quiet, 90's being 1s. 6d. and 50's 1s. 7d. Solvent naphtha is very firm indeed, and in good demand, while anthracene and pitch remain unchanged.

The sulphate of ammonia market displays a much steadier tone, and this is specially noticeable so far as future deliveries are concerned, the prices for forward showing a considerable improvement. Business for spot delivery is reported at £12. 12s. 6d. Beckton, London outside makes £12. 11s. 3d. to £12. 12s. 6d., Hull and Leith £12. 10s. to £12. 12s. 6d., according to quality, while there are buyers forward at £12. 17s. 6d. The turn of the market has to some extent stopped the "Bear" selling, and it becomes more evident every day that there will probably be a short supply of sulphate for the Spring, and the make, owing to the coal strike, is comparatively small for this time of the year.

MISCELLANEOUS CHEMICAL MARKET.

In the alkali trade the position of matters continues to grow worse in regard to the fuel difficulties, and there is now almost a complete stoppage of all the Leblanc works in Lancashire. The supply of bleaching powder and caustic soda is now insufficient to meet current requirements. Prices, therefore, are merely nominal for such supplies as

can still be obtained in the Glasgow, Tyne, and Liverpool district. Bleaching powder, nearest price, £8. 10s. nett. per ton, f.o.b., maker's works; f.o.b., white caustic soda, 77%, £12. per ton, f.o.b. Tyne; f.o.b. Liverpool, 74%, £11. 10s.; 70% £10. 15s.; 60% £9. 15s.; cream, 60% £9. 10s., 10 ton lots and upwards. In ammonia alkali considerable change in the position has taken place and price has advanced fully 12s. 6d. per ton for 1894 contracts. £3. 12s. 6d. in bags being now lowest figure, both for prompt and forward delivery. Soda crystals unchanged. Sulphate of copper is offered more freely, and as a consequence prices are a shade weaker. £15. 15s. f.o.b. is general quotation. Litharge continues dull but there is no change in price. Acetates of lead are in rather better request. Foreign white is still quoted £26. at usual points; English, £27. Acetate of lime is in good demand for spot delivery and prices are strong, £7. for brown and £11. for grey, are values to-day. Acetate of soda fairly steady at former prices. White powdered arsenic moves well and prices remain at £13. 5s. Garston nitrate of soda sells but slowly and prices are weak, £8. 18s. 9d. is price to-day. Oxalic acid flat at 3d. Yellow prussiate of potash quiet, with a downward tendency. Soda much in the same position. Sulphuric and muriatic acids scarce and satisfactory prices are being obtained.

REPORT ON MANURE MATERIAL.

There has been more doing in phosphatic material, at hardening prices, but the market for nitrogenous material is quiet and without much alteration in values. A large business has been doing at the other side in 75/80% Florida phosphate rock at full prices, free on board, and there are buyers for Continent at 8½d., and for Baltic and Mediterranean at 9d., cost freight and insurance. For good United Kingdom ports the nearest value is 8½d., c.f. and i. Quotations for Carolina River rock and for Peace River, shipment ahead, continue to be largely nominal, but for early shipment full prices have to be paid. There is more demand for River Plate bones, and several October-November shipments have been sold at £4. 12s. 6d. per ton, to direct United Kingdom ports; £4. 15s. paid for an October shipment, to coast for orders. Crushed Calcutta bones offer at £4. 15s., November-December shipment, and crushed Kurrachees at £4. 17s. 6d., January-February shipment. Sales of Bombay bone meal, October to January shipment, have been made at £4. 17s. 6d. per ton, and that is closing value. There is nothing offering on spot. Nitrate of soda remains quiet in all positions. On spot there are sellers at 9s. 1½d. per cwt. Due cargoes are worth 8s. 10½d. per cwt., and October-November shipments about 9s. 1½d. There is nothing to report in miscellaneous nitrogenous material, there being practically nothing in first hands offering.

WEST OF SCOTLAND CHEMICALS.

GLASGOW, TUESDAY.

The market still continues to favour the side of the buyers of sulphate of ammonia, and the article is a further mark to the fall. Quotation to-day is £12. 8s. 9d. to £12. 10s. for prompt. It has been asserted that £12. 7s. 6d. has been accepted, but this lacks confirmation, and the statement is disbelieved for the most part. There has been more inquiry after forward terms, but, so far, without leading to much business.

Caustic soda is easier, and buyers are being offered better terms. Bleaching powder is reported steadier, with a check in the late tendency to fall. Soda ash is rather firmer. Soda crystals uncertain, but probably £2. 10s. is about the correct value. There is no activity in the general market, and buyers seem quite easy in their minds about covering their engagements, notwithstanding so considerable a diminution of production.

The healthiest section is still that of mineral oils and paraffins, deliveries ex contracts continuing in large volume, with, as a rule, prices a fraction higher in second hands. 865° lubricating oils are in brisk inquiry for gas making, &c., and seem able to stand the recent rise.

Chief prices current are:—Soda crystals £2. 10s. nett, Tyne; soda ash £3. 17s. 6d. nett, Tyne; white alkali 48/52° £4. 10s. to £5. nett, Tyne; alum in lump £5. nett, Glasgow; caustic soda, white, 74° £11. 10s., 70/72° £10. 15s., 60/62° £9. 15s., and cream 60/62° £9. 10s., all nett, Liverpool; bleaching powder £7. 15s., nett Tyne; salicake, 22s. 6d.; borax, English refined, £30., and boracic acid, £37. 10s. nett, Glasgow; bicarbonate of soda, 5-cwt. casks, £6. 15s., and 1 cwt. casks £7. less 2½%, Liverpool; bichromate of potash, 4½d. nett, for Scotch and English deliveries (for export, 4½d. nett, f.o.b. Glasgow); bichromate of soda, 3½d. nett, for Scotch and English deliveries (for export, 3½d. nett, f.o.b. Glasgow); chlorate of potash, 8d. less 5%, Liverpool; nitrate of soda, 9s. 3d.; sulphate of ammonia, £12. 8s. 9d. to £12. 10s. prompt, f.o.b. Leith; salammoniac, first and

second white, £37. and £35. less 2½% any port; sulphate of copper, £15. 15s. less 5% Liverpool; paraffin scale, hard and soft, 1¾d. per lb.; paraffin wax 120° semi-refined 2¾d.; paraffin spirit (naphtha) 4½d. to 5d. per gallon; paraffin oil, burning, standard No. 1 grade, 5½d. per gallon at works, for Scotch buyers (English sales ½d. to ¾d. lower); ditto (lubricating) 865° £4. 7s. 6d. to £4. 10s., 885° £4. to £5. 10s., and 890/895° £5. to £6. Week's imports of raw sugar at Greenock were 12,100 bags.

HULL PAINT, OIL, AND COLOUR REPORT.

TUESDAY.

The following is a report published by the press generally here and should be treated *cum grano salis*:—"Messrs. Thos. Wilson, Sons and Co., the largest private shipowners in the kingdom, have made arrangements to run a line of steamers direct to Manchester through the Ship Canal. This means a diversion of trade from Hull, and is causing much concern in commercial circles here. The North Eastern Railway Co., are preparing to make extensive improvements with a view to keep the trade at Hull Docks, and already a scheme is under consideration which will involve the expenditure of thousands of pounds." The first and last statements may be correct, but the inference is too previous.

OILS.—The exports are so insignificant for the week and below anything previously, as to make any market values of oils, dependent for changes solely upon the settlement of the local crisis, which is so uncertain that an impression seems to be abroad that the co-people will neither work themselves nor let anyone else. Linseed oil has been dull, especially in forward positions; spot closes steady at 20s. to 20s. 1½d. naked; first half November, 19s. 9d.; November-December offer at 19s. 3d.; January-April, 19s. accepted; May-August, done at 19s. 6d.; casks, 17s. 6d.; and ordinary barrels, 22s. 6d. per ton extra. Export for the week 56 tons. Refined cotton oil on the spot has declined about 12s. 6d. per ton, closing with sellers at 20s. 3d. naked; November still quoted 19s. 3d., and December-April, steady at 18s. 3d.; old crude on the spot, 18s. naked, and new 18s. 4½d. Export of refined, 91 tons. Refined rape oil in cask 24s. Castor oil, first pressure, 2¾ per lb. Coast cod oil, good business passing, £17. 10s. to £19. per ton. Herring oil, £16. 10s. Sod oil, £15. to £17. Rosin oil, £7. per ton. Anti-friction greases, from £6. Engine and cylinder oils from 1s. to 2s. per gallon.

CAKES.—The demand is not so good as is usual at this season. The enormous supply of cheap foreign barley at about £4 per ton is telling against cakes. Linseed cakes very firm, and will most likely be dearer with colder weather. Best makes 95% pure, £8. 15s. ordinary, £7. 5s. to £7. 10s.; Russians, £8. 10s.; cotton cakes: The demand is disappointing, market firm, best makes, £5. 5s. spot, and £4. 17. 6d. December-April. Rape cakes, £4. 15s., East India; £4. 5s., Black Sea.

PAINTS.—The exports of painters' colors and chemicals were of the former an increase, being 1,021 packages against 752 packages a year ago, and of chemicals a decrease, being 2,069 packages against 2,169 packages. White and red leads unchanged. Oxide of zinc £22. 10s. od. per ton; oxide of iron, dry, £9. to £18. per ton; Venetian red, £6. to £10. per ton; lime blue, 16s.; ready mixed paints, 28s.; common black varnish, £5. 10s. per ton in barrels free; oak varnish from 6s. per gallon.

LIVERPOOL OIL AND COLOUR MARKET.

WEDNESDAY.

OILS.—Palm oil still rules quiet, and prices are still easier, the little business that has been done having been covered at £24. 10s. for Lagos; Cameroon £23. 5s. per ton, both transit. Olive is in fairly good demand, but sellers are inclined to hold for better prices, which range from £32. 10s. to £41. per ton, according to quality. Linseed is quiet again, though Liverpool makes in export casks are still quoted 22s. to 22s. 6d. per cwt. Cottonseed is firm, owing to the scarcity of the supply, but prices have not as yet been advanced, 22s. 6d. to 23s. 6d. per cwt. being to-day's value for Liverpool refined. Castor oil is firm and in good request, and good seconds Calcutta cannot be had for less than 2½d. First pressure French is worth 2¾d. per lb. Tallow is in good demand, but supplies are small. Prices in general are firm. Resin is meeting with a fairly good all round inquiry at the advance, common being quoted 3s. 9d. to 3s. 10½d., medium 4s. 3d. to 7s. 6d., fine 8s. to 11s. per cwt. Spirits of turpentine are stronger in tone, and are fairly well inquired for at 22s. 9d. per cwt. Petroleum is steady, with American at 4½d. to 5¾d., according to quality. Russian refined 3¾d. per gallon.

COLOURS are steady without alteration in prices. Ochres: Oxfordshire, common, £10., medium, £12., best, £15.; Derbyshire, common, 40s.; medium, 50s., best, 60s.; Welsh, best,

70s., seconds, 50s., and common, 18s.; Irish, Devonshire, 40s. to 45s.; French, J.C., 55s. to 60s.; M.C., 65s. to 67s. 6d. Umber: Turkish quiet; Devonshire, 50s. to 55s. White lead, red lead, and oxide of zinc unchanged. Venetian red, £6. 10s. to £10. Cobalt: Prepared oxide, 9s. 9d.; black, 9s.; blue, 6s. Zaffres: No. 1, 3s. 6d.; No. 2, 2s. 6d. Oxide of iron: Common, £6.; medium, £10.; finest, £20. Zinc oxide, £23. to £25.

THE METAL MARKETS.

LONDON, WEDNESDAY.—Pig iron inactive. Scotch warrants closed at 42s. 3½d., Middlesbrough 34s. 4d. cash, and hematite 44s. 3½d. Copper, better: Chili bars, G.O.B.'s and G.M.B.'s closed at £42. 5s. to £42. 12s. 6d. cash, and £42. 15s. to £43. 2s. 6d. three months. Tin, steady: Straits closed at £76. 10s. to £77. cash, and £77. 7s. 6d. to £77. 17s. 6d. three months; Australian, £77. 5s. English ingots, £81. 10s. Lead, firm: Spanish, £9. 16s. 3d. to £9. 17s. 6d.; English, £9. 17s. 6d. to £10. Silesian spelter: ordinary, £17. to £17. 2s. 6d. Nickel, 1s. 7½d. Antimony, £37. 10s. Quicksilver: First hands, £6. 7s. 6d.; second hands, £6. 7s. 6d. Copper shares, firm: Cape, 1½ to 1½. Copiapo, 1½ to 1½. Libiola, 2½ to 3½. Mason and Barry, 1½ to 1½. Rio Tinto 14½ to 14¾. Tharsis, 4½ to 5½.

WOLVERHAMPTON, WEDNESDAY.—It is not expected that the balloting will alter the refusal of the Miners' Federation to come to terms. Much disappointment is felt among ironmasters at the progress of the strike, and the consequent prospective continuance of high fuel rates. Northampton and Derbyshire pigs, 45s. to 46s. at stations for forge sorts, and 48s. to 50s. for foundry. Staffordshire foundry pigs of medium quality are quoted 50s. to 52s. 6d.; medium forge 45s. to 46s. West coast hematites delivered, 54s. to 57s. 6d. Finished iron firm.

GLASGOW, WEDNESDAY.—Market idle, with small business. Scotch done at 42s. 3½d. cash, closing with buyers at 42s. 3½d. cash, sellers ask 42s. 4d. Cleveland closes with buyers at 34s. 4d. cash, sellers ask 34s. 5d. Cumberland hematite closes with buyers at 44s. 3½d. cash, sellers ask 44s. 4½d. Middlesbrough hematite closes with buyers at 43s. 3d. cash, sellers ask 43s. 4½d. Copper closes with buyers at £42. 3s. 9d. cash, sellers ask £42. 6s. 3d.

TYNE CHEMICAL REPORT.

TUESDAY.

Chemicals quiet. Caustic in fair demand. Soda crystals, £2. 10s. per ton. Bleach, £7. 15s. per ton. Sulphur extremely scarce, at £4. 5s. and £4. 7s. 6d. per ton. Other products unaltered.

Bleaching powder, softs, £7. 15s. per ton, nett; hards, £8. per ton; caustic soda, 76/77%, £11. 10s. per ton, 70%, £10. 0s. per ton; recovered sulphur, 2 cwt. bags, £4. 5s. per ton; soda ash, 48%, £3. 15s. per ton, 52%, £4. 2s. 6d. per ton, 56%, £4. 10s. per ton; alkali, 36%, £3. per ton; white alkali, 48%, £4. 10s. per ton, 50%, £4. 15s. per ton, 52%, £5. per ton; hyposulphite of soda, in 5-7 cwt. casks, £7. per ton, ditto, in 1 cwt. kegs, £7. 15s. per ton; silicate of soda, 75° Tw., £2. 15s. per ton, 100° Tw., £3. per ton, 140° Tw., £3. 17s. 6d. per ton; soda crystals, in casks, £2. 10s. per ton gross weight, in 2 cwt. bags, £2. 10s. per ton nett weight; chlorate of potash, 8½d. per lb. less 6%; pearl hardening, £3. per ton nett; pure white sulphate of alumina, £4. 2s. 6d. per ton; blanc fixe, £7. 10s. per ton; chloride of barium, £7. 10s. per ton; carbonate of alumina, £28. 15s. per ton nett; aluminate of soda, £33. 15s. per ton nett; in 5 ton lots, £28. 10s.; hydrate of barium, £10. per ton nett.

South Durham salt unaltered, at 9s. 6d. f.o.b. Tees.

Coals: There is an improvement in trade, and there is an excellent demand for best coals. Best Northumbrian steam, 14s. and 15s. per ton; small steam, 6s. and 6s. 6d. per ton; bunker coals steady, 11s. per ton; gas coals in large demand, 11s. 6d. and 12s. per ton; coke steady, at 15s. 6d. and 16s. per ton.

New Companies.

Crown Turpentine Manufacturing Co., Limited. CAPITAL £500. in shares of £1. each. This company has been formed to acquire the business of Peter Bowden, of Atherton, Lancashire, and to trade as manufacturers of turpentine oils, chemicals, etc.

Isle of Man Antimony Mining Co., Limited. CAPITAL £4,000, in shares of £1. each. This company has been formed to carry on, at Patrick, Isle of Man, and elsewhere, the business of mining antimony, lead, silver, etc.

Preston Drug and Stores Co., Limited. CAPITAL £10,000, in shares of £2 each. This company has been formed to take over the Preston Drug Co., and to carry on the business of chemists, drysalters, oil and colour merchants, etc. The subscribers to the memorandum of association are:—E. Wilson, 10, Mount-street, Preston, chemist; R. Yates Knagg, 22, Garstang-road, Fullwood, schoolmaster; T. Lewis, 93, Fishergate, Preston, chemist and druggist; A. R. Leake, 21, Guildhall-street, Preston, chartered accountant; G. T. Holland, 6, Garden-street, Preston, chemist; J. R. Gibson, The Mount, Fleetwood, shipbuilder; J. Duncan, 3, Charles-street, Preston, chemist, etc.

The Patent List.

This list is compiled from Official sources in the Manchester Technical Laboratory, under the immediate supervision of George E. Davis and Alfred R. Davis, who report professionally upon the value of Chemical Patents.

APPLICATIONS FOR ENGLISH LETTERS PATENT.

Drying Refractory Gold Ores, Tailings, etc. H. H. Gunn and J. H. R. Patterson. 19,910. October 23.
Safety Explosive. W. Evelyn-Liardet. 19,931. October 23.
Centrifugal Fans and Pumps. G. M. Capell. 19,953. October 23.
Mordant Dyeing Colouring Matters. J. Y. Johnson. 19,962. October 23.
Filtering Apparatus. J. D. G. Thompson. 19,985. October 24.
Mechanical Furnaces. J. W. Claridge. 19,988. October 24.
Improvements in Illuminating Gas. G. F. Long and C. Rose. 19,992. October 24.
Liquid Fuel Burning Apparatus. P. Dvorkovitz. 20,012. October 24.
Butter Substitutes. W. P. Thompson. 20,027. October 24.
Utilizing Waste Sulphite Liquors. C. D. Ekman. 20,036. October 24.
Manufacture of Fuel. W. B. Hartridge. 20,053. October 24.
Supplying Air to Boiler Furnaces. D. B. Morison. 20,088. October 25.
Electrolytic Cells. L. Mond and R. L. Mond. 20,116. October 25.
Oil-Burning Apparatus. E. Dyson. 19,118.
Improvements in the Preparation of Caustic Soda and Utilising By-Products Therefrom. G. E. Davis. 20,130. October 25.
Utilizing Carbonic Acid from Fermentation. A. Grauaug. 20,146. October 25.
Improvements in the "Wet" Process of Vulcanising Rubber. W. B. Hart. 20,159. October 25.
Burning Liquid Fuel. O. E. Phol. 20,162. October 26.
Improvements in and Connected with Methods and Apparatus for Drying Articles Produced from Substances Dissolved or Suspended in Evaporable Liquids. W. B. Hart. 20,196. October 26.
Improvements in the Manufacture of Gas. J. A. Wanklyn and W. J. Cooper. 20,215. October 26.
Separating Alkaline Nitrates from their Containing Liquors. H. Ritter Von Dahmen. 20,216. October 26.
Ammoniated Soaps. C. R. Huxley and R. W. Iversen. 20,218. October 26.
Improved Metallic Alloy. D. W. Sugg. 20,234. October 26.
Artificial India-Rubber. P. A. Newton. 20,233. October 26.
Manufacture of White Lead. J. H. Noad and S. Z. De Ferranti. 20,239. October 26.
Obtaining Aqueous Solutions of Phenols, etc. L. O. Helmers. 20,245. October 26.
Condensing Gases from Chemical Works, etc. T. A. Bullough. 20,252. October 27.
Preservative Coating for Iron and Steel. W. M. Walters and F. R. Stone. 20,253. October 27.
Filtering Water. S. Wirtmann. 20,259. October 27.
Improvements in the Utilization of the Broken Bricks used in the Deacon Chlorine Process and the Recovery of Copper therefrom. J. R. Wyld and D. Williams. 20,295. October 27.
Obtaining Distilled and Sterilized Water. J. Nagel. 20,296. October 27.
Blue Colouring Matters. H. H. Lake. 20,312. October 27.
Artificial Silk. P. A. Newton. 20,315. October 27.
Manufacture of Gunpowder. A. Schlinder. 20,327. October 27.
Extraction of Gold and Silver from their Ores. J. C. Montgomerie. 20,343. October 27.
Producing Hydrogen. E. Morway and J. Fielding. 20,355. October 28.
Superheating Steam. J. Musgrave and G. Dixon. 20,359. October 28.
Decolourising Sugar Solutions. C. Steffen. 20,397. October 28.
Production of Caustic Alkali. C. T. J. Vautin. 20,404. October 28.
Deodorising Oils and Fats. H. J. Bull. 20,413. October 28.

Gazette Notices.

PARTNERSHIPS DISSOLVED.

J. A. FORREST and J. C. FORREST, oil, paint, and varnish merchants, Liverpool, under the style of J. A. Forrest and Son.
E. S. JINKS and S. T. JINKS, oil and colour men, Brigstock Road, Thornton Heath, and Annerley Hill, Anerley, S.E., under the style of E. Hugh Jinks.
J. HORSLEY and W. J. WHARAM, seed crushers and chemical manure manufacturers, under the style of Horsley and Wharam, Hull.
The business carried on by the late R. MILLER, merchant, Glasgow, under the style of George Miller and Co., manufacturing chemists and oil merchants, Glasgow, has been transferred by his trustees to J. C. Miller and G. Miller, both sons of the late R. Miller, and they will continue the business under the same style.

BANKRUPTCY ACTS, 1883 and 1890.

Receiving Order.

HENDEN, WILLIAM, Sidestrand, Norfolk, manufacturing chemist.

IMPORTS OF CHEMICAL PRODUCTS

AT
THE PRINCIPAL PORTS OF THE UNITED KINGDOM

LONDON.

Week ending October 28th.

Acetanilide — Holland, 3 pkgs.	T. Palmer
Acetate of Lime — U States, 730 pkgs.	Johnson & Hooper
Acetic Acid Holland, 200 pkgs.	A. & M. Zimmermann
" 8	Phillipps & Graves
" 70	Beresford & Co.
" 30	J. Owen
Acetone — Holland, 7 pkgs.	A. & M. Zimmermann
Alkali — Canada, 68 c.	Charles & Fox
France, 220	Arnati & Harrison
Germany, 581	P. Hecker & Co.
France, 97	J. A. Reid
Antimony — Australia, 38 t.	H. Bath & Son
France, 1/2	H. Johnson & Sons
" 150	J. Bamber
Sydney, 3	Vivan, Younger & Co.
Asbestos — France, £21	Mory & Co.
Italy, 244	British Asbestos Co.
" 550	London
" 490	Mory & Co.
Barium Chloride — Germany, 48 pkgs.	Petri Bros.
Barytes — Belgium, 23 brls	D. C. Thomas & Sons
Germany, 64 cks.	W. Harrison & Co.
" 17	Newcombe & Son
France, 44	J. B. Orr & Co.
Germany, 32	H. Lambert
Belgium, 75	W. Harrison & Co.
" 47 brls.	Hemingway & Co.
Holland, 22	O'Hara & Hoar
" 22	S. H. Willoughby
Borax — Denmark, 3 pkgs.	Tegner, Price & Co.
Caoutchouc — France, 39 c.	H. Johnson & Sons
E. Indies, 54	W. M. Smith & Sons
Germany, 2	L. & I. D. Jt. Co.
Zanzibar, 26	"
Jamaica, 6	"
Mozambique, 6	"
U. States, 12	Anderson, Welber & Smith
" 206	L. & I. D. Jt. Co.
Portugal, 10	"
Germany, 11	Stiebel Bros.
U States, 32	Chantard & Christensen
Zanzibar, 43	Clarke & Smith
Belgium, 9	Lewis & Peat
" 65	W. Balchin
Castor Oil — Italy, 10 cs.	F. Boehm
Holland, 40	Hodgkinson & Co.
Belgium, 5 brls.	Fuerst Bros.
Chemicals (otherwise undescribed) Germany, 36 pkgs.	L. T. H. Lee
" 35	A. & M. Zimmermann
France, 1/4	Mory & Co.
Italy, 1/4	Hughes, Chemery & Co.
Holland, 60	A. & M. Zimmermann
" 3	J. Barber & Co.
" 1/6	W. Charity & Sons
Germany, 5	W. J. Crook
Chloride of Sulphur — Germany, 20 pkgs.	Typek & King
Copperas — Germany, 32 pkgs.	B. & F. Wf. Co., Ltd.
Cream of Tartar — France, 4 pkgs.	Ross & Deering
Spain, 2	Evans, Lescher & Co.
" 7 cks.	W. C. Bacon & Co.
France, 20 pkgs.	F. C. Devon & Co.
" 10	Finlay & Co.
" 40	"

" 5	C. F. Gerhardt
Holland, 10	M. Ashby, Ltd.
France, 60	Middleton & Co.
" 2	S. Hanson Son & Co.
" 5	B. & F. Wf. Co., Ltd.
" 2	Maconochie Bros.
" 2	E. W. Carling & Co.
Dextrine — Germany, 30 pkgs.	Herrmann, Keller & Co.
Dyestuffs — Argols Italy, 133 pkgs.	Thames S. T. & L. Co., Ltd.
" 910	B. Jacob & Sons
Goethineal Canaries, 23 pkgs.	W. M. Smith & Sons
" 24	Marshall & French
" 9	Johnson, Hicks & Co.
Gutch E. I., 300 pkgs.	R. G. Hall & Co.
Rangoon, 1,011	Prop. Hay's Wf
Extracts France, 30 pkgs.	Union L. Co. Ltd.
Denmark, 70	Tegner, Price, & Co.
Germany, 10	T. H. Lee
France, 23	Beresford & Co.
" 37	Williams, Torrey, & Co.
Denmark, 1	Sorenson & Co.
U.S., 100	Skilbeck Bros
Gambler E. I., 176 pkgs.	S. Barrow & Bros., Ltd.
" 187	J. Greig
" 224	L. & I. D. Jt. Co.
" 244 chts.	Adamson, Gilfillan, & Co.
Indigo — 82 chts.	Eales & Rutherford
Canada, 1	L. & I. D. Jt. Co.
E. I., 27	"
" 65	Arbuthnot Latham & Co.
" 53	R. von Glehn & Sons
Germany, 26	Croysdale & Co.
" 1	H. Lambert
Logwood Mexico, 10 t.	L. & I. D. Jt. Co.
Myrabolams E. I., 817 pkgs.	L. & I. D. Jt. Co.
" 1,800	A. Hagan
Naphthol Germany, 3 pkgs.	Drolenvaux & Bremner
" 3	J. Payson
Sumac Italy, 100 pkgs.	H. Johnson & Sons
Tanner's Bark U.S., 14 t.	Beresford & Co.
Belgium, 10	Sawer, Sons, & Co.
Turmeric E. I., 38 pkgs.	L. & I. D. Jt. Co.
" 500	Major & Field
Farina — France, 8 pkgs.	Hernu Peron & Co.
Holland, 30	Beresford & Co.
Germany, 90	L. & I. D. Jt. Co.
" 100	Seaward Bros
Belgium, 200	T. H. Lee
Flux Skimmings — Belgium, 187 pkgs.	Hughes, Chemery, & Co.
French Chalk — Austria, 1/90.	Magee, Taylor & Co.
Glucose — Germany, 100 pkgs.	100 c M. D. Co.
U. States, 50	305 c Beresford & Co.
" 800	275
" 16	100
" 114	684
" 50	275
" 50	284
Germany, 30	243
U. States, 709	4,135
" 500	500
" 50	280

" 50	306	B. & N. Whys & Co.
" 150	800	Pillow, Jones & Co.
" 160	940	R. G. Hall & Co.
" 600	1,098	Windmuller, Mack & Co.
" 50		H. Lorenz
" 820	5,245	Beck & Pollitzer
" 500	500	Ohlenschlager Bros.
" 400	400	Barrett, Tagant & Co.
" 50	280	Prop. Chmblin's Wf.
Guano — Aden, 17 t.		Wrightson & Son
Iodine — Germany, 189 pkgs.		A. Gibbs & Sons
Lime — Belgium, 185 t.		Walker, Howard & Co.
Manure — E. I., 46 t.		L. & I. D. Jt. Co.
France, 101		J. Burnett & Sons.
Methyl Alcohol — Germany, 6 brls.		Stein Bros.
Mica — E. I., £148.		W. M. Smith & Sons
U. States, 60		Knight & Morris
Ochre — France, 2.9 cks.		W. Harrison & Co.
Holland, 12 cs.		Phillips & Graves
Paraffin Wax — U. States, 176 brls		H. Hill & Sons
" 2,546		J. S. Usmar & Co.
Phosphate Rock — Belgium, 200 t		Anglo-Cont Guano Wks.
" 250		Odani's Chmcl.
Holland, 1		Hernu, Peron & Co.
France, 178		A. Hunter & Co.
Plumbago — Germany, 90 cs.		T. H. Lee
" 20 cks		Lentz & Kessel
" 12		Brown & Elmslie
" 90 cs.		B. Oylett & Sons
Holland, 18		G. Kahn & Co.
" 18 cks.		B. Gallaway
Germany, 1		Z. Cartwright
Potash — France, 105 c.		Petri Bros
" 100		F. W. Berk & Co., Ltd.
Belgium, 10 pkgs.		T. Palmer
Potassium Carbonate — Germany, 20 c.		Craven & Co.
" 10 pkgs.		F. Boehm
Canada, 100 c.		J. Barber & Co.
Potassium Chloride — Germany, 100 pkgs.		F. W. Berk & Co., Ltd.
" 30		L. & I. D. Jt. Co.
Potassium Oxalate — Holland, 20 pkgs.		Beresford & Co.
Potassium Oxymuriate — U. States, 195 pkgs.		G. Boor & Co.
Potassium Permanganate — Germany, 20 pkgs.		H. Lorenz
Potassium Sulphate — France, 50 pkgs.		Petri Bros.
" 9		Mead, Son & Co.
Pumice Stone — Italy, 5 t.		D. Storer & Sons
Orotava, 15		O'Hara & Hear
" 12 c.		L. & I. D. Co.
Pyrites — Spain, 860 t.		Societe Commerciale
Rosin — France, 14 brls.		B. & F. Wf. Co.
Saltpetre — E. Indies, 1,416 bgs.		Lucas & Spencer's Wf.
Germany, 4 cks.		W. H. Mitchell
" 222		P. Hecker & Co.
" 25 pkgs.		Brown & Elmslie
" 90 cks.		T. H. Lee
E. Indies, 1,169 bgs.		C. Wimble & Co.
Peru, 8,049		W. Montgomery & Co.
Soda — Germany, 115 c.		H. Lambert

Sodium — Holland, 26 pkgs.	Beresford & Co.
Sodium Acetate — France, 15 pkgs.	H. Lorenz
Sodium Nitrate — Germany, 4 pkgs.	C. Faust & Co.
Starch — Germany, 2,610 pkgs	Horne & Co.
" 640	L. Sutro & Co.
Belgium, 30	E. & T. Pink
" 38	T. H. Lee
Holland, 140	J. Barber & Co.
" 20	Phillipps & Graves
" 100	Hernu, Peron, & Co.
" 800	Vokins & Co.
" 1,080	C. J. Capes & Co.
Belgium, 151	Taylor Bros.
" 20	Leach & Co.
Stearine — France, 230 bgs	G. Boor & Co.
" 70	Beresford & Co.
Talc — Italy, £40	C. F. Gerhardt
E. Indies, 1,815	Ross & Deering
Tar — N Russia, 3,755 brls.	W. F. Malcolm & Co.
Tartaric Acid — Austria, 17 pkgs.	F. Smith
Holland, 17	Middleton & Co.
Austria, 17	M. D. Co.
Turpentine — Savannah, 2,575 brls.	Nickoll & Knight
Ultramarine — Holland, 4 cks.	Spies Bros. & Co.
" 7 cs	Haefner & Co.
Belgium, 8 pkgs.	W. Harrison & Co.
Holland, 1 ck.	B. Gallaway
Varnish — Belgium, 2 pkgs.	J. & T. Seddon
France, 12	Flageolet & Co.
U. States, 2	Brown, Douglas & Co.
Verdigris — France, 2 cks.	B. & F. Wf. Co., Ltd.
White Lead — Holland, 22 cks.	Petrie Bros.
" 100	Burrell & Co.
Germany, 14	Spies Bros. & Co.
" 48	M. Ashby, Ltd.
" 42	G. Farmiloe & Sons
France, 28	S. H. Willoughby
Belgium, 10	J. Watt & Son
" 9 brls.	O'Hara, Matthews & Co.
Zinc Oxide — Holland, 275 brls.	M. Ashby, Ltd.
" 100 cks.	Soundy & Sons
LIVERPOOL. Week ending October 26th.	
Acetic Acid — Rotterdam, 9 pkgs.	
Ammonium Chloride — Constantinople, 2 cks.	
Antimony — Antofagasta, 94 bgs.	A. Gibbs, Son & Co.
" 286	Hainsworth, Watson & Co.
Mollendo, 162	J. Zegold & Co.
" 110	Brailard Bros.
Constantinople, 750	G. Lorenzo, Volo,
" 1 pkge.	G. G. Blackwell
Asbestos — Genoa, 4 cs.	
Bone Meal — Kurrachee, 100 bgs	
Caoutchouc — Havre, 271 pkgs.	Cunard S. S. Co., Ltd.
Hamburg, 4	
Camphor — Hamburg, 2 cks.	
Castor Oil — Marseilles, 60 brls.	
Genoa, 10 cs.	Evans, Sons & Co.
" 10	J. Thompson
Leghorn, 14	
Chemicals (otherwise undescribed) Rotterdam, 1	

Chrome Ore—
Volo, 300 t 5 bgs. G. G. Blackwell

Chromium Acetate—
Rotterdam, 10 brls.

Colours—
Bremen, 30 cks. 3 cs.
Hamburg, 4 10
Rotterdam, 20 2

Cottonseed Oil—
N. Orleans, 200 brls.

Dyestuffs—
Divi Divi

Hamburg, 86 bgs.

Extracts
Philadelphia, 100 brls.
Bordeaux, 25 cks.
Baltimore, 50 brls.

Mucklow & Co

Fume, 497 De Clermont & Domier

Fustic, 500 Oak Extract Co.

Maracaibo, 133 ps. E. Brownbill & Co.

Logwood
Belize, 212 L. Belize Est. & Pro Co., Ltd.
Havre, qty. Cunard S. S. Co., Ltd.

Madder
Smyrna, 16 brls.

Orchella
Lisbon, 30 bgs. Edwards Bros.

Saffron
Valencia, 1 cs.

Sumac
Palermo, 100 bgs. J. Kitchin, Ltd.

" 300 H. Rooke, Sons & Co.

" 2,100 1,160 brls.

Valonia
Hamburg, 167 bgs.
Smyrna, 1,060 kts. E. Shahum & Co.

" 2,706 110 t. Barry Bros

Farina—
Fiume, 300 bgs.

Manganese—
Hamburg, 1 ck.

Mineral White—
Trieste, 200 brls. Schiöder & Co.

" 100 bgs.

Ochre—
Bordeaux, 13 cks.

Phosphate—
Dunkirk, 530 t. J. Vickers & Son
Antwerp, 280

Potash—
Hamburg, 46 cks.
Rotterdam, 1

Pumice Stone—
Messina, 20 bgs. 20 cs.

Pyrites—
Huelva, 3 153 t. Tennants & Co.
2,993 Matheson & Co.

Rosin—
Ceara, 119 bgs.
New York, 20 brls. Larrinaga & Co.

" 1,509 1,185
Baltimore, 54
N. Orleans, 54
Savannah, 250

Saltpetre—
Hamburg, 8 cks. 10 kgs. 7 brls.
Rotterdam, 20

Soap—
Philadelphia, 4 cs. Ayrton & Saunders
Leghorn, 550 bxs. Weaver & Sterry

" 10 54 cs. P. Behrend
Naples, 54
Bari, 240

Sodium Bicarbonate—
Rotterdam, 1 ck.

Sodium Nitrate—
Iquique, 12,315 bgs. Bahr, Behrend & Ross

Starch—
Hamburg, 80 cs.
Baltimore, 2,400 bgs.
Rotterdam, 190 cs.

Sulphur—
Catania, 118 cks. B. Ackerley & Son

" 34 brls. 375 bgs. 150 t.

Tallow—
Philadelphia, 100 tcs.
B. Ayres, 13 pps. 13 hfpss.

" Argentine Meat Pres. Co. Haycroft & Pethick

New York, 50 hds. Co-op W'sle. Society Ltd.

Tartar—
Naples, 2 cks.
Bordeaux, 4

Tartaric Acid—
Rotterdam, 4 cks.

Ultramarine—
Bremen, 3 cks.
Hamburg, 8 5 cs.
Rotterdam, 9 21

Verdigris—
Bordeaux, 9 cks.

Waste Salt—
Hamburg, 1,517 bgs. 418 t.

White Lead—
Rotterdam, 20 cks.

Zinc Oxide—
Rotterdam, 15 cks.

HULL.

Week ending October 28th.

Alum—
Rotterdam, 35 cks. W. & C. L. Ringrose

Antimony—
Hamburg, 1 cs. Lofthouse & Saltmer

Barytes—
Antwerp, 104 cks. Bailey & Leatham

Rotterdam, 46 Hutchinson & Son

Camphor—
Hamburg, 3 cks. Wilson, Sons, & Co., Ltd.

Chemicals (otherwise undescribed)
Dunkirk, 69 pkgs. Wilson, Sons, & Co., Ltd.

Antwerp, 31 dms. "

Colours—
Rotterdam, 4 cks. G. Lawson & Sons

Flushing, 43 pks. 4 cks. Brach & Rothenstein

Rotterdam, 34 45 pkgs. W. & C. L. Ringrose

" 1 5 G. Lawson & Sons

" 4 J. Good & Sons

" 9 cs. 9 Hutchinson & Son

Hamburg, 1 Cammell, Haigh, & Co.

Antwerp, 6 cks. Bailey & Leatham

Bremen, 7 4 Veltmann & Co.

" 4 Storry, Smithson, & Co.

Amsterdam, 1 kg. W. & C. L. Ringrose

Flushing, 3 28 Hutchinson & Son

Cottonseed Oil—
New York, 100 brls. Wilson, Sons, & Co., Ltd.

Cream of Tartar—
Rotterdam, 1 ck. G. Lawson & Sons

Dextrine—
Stettin, 70 bgs. Wilson, Sons, & Co., Ltd.

Dyestuffs—
Allzarine
Rotterdam, 41 brls. 3 cs. Hutchinson & Son

" 72 pks. W. & C. L. Ringrose

Logwood
Hamburg, 1,318 pcs. Wilson, Sons, & Co., Ltd.

Valonia
Smyrna, 148 t.

Farina—
Harlingen, 100 bgs. W. & C. L. Ringrose

Stettin, 600 Wilson, Sons, & Co., Ltd.

Ghent, 445 160 cs. Wilson, Sons, & Co., Ltd.

Hamburg, 10

Harlingen, 520

Glucose—
New York, 694 brls.

Kaolin—
Rotterdam, 267 bgs. Reckitt & Sons

Ochre—
Rouen, 11 cks. Rawson & Robinson

Paint—
Boston, 15 cs.
New York, 6 Wilson, Sons, & Co., Ltd.

Soap—
Bremen, 1 fkn. C. W. Drever

Sodium Nitrate—
Hamburg, 100 bgs. Wilson, Sons, & Co., Ltd.

Starch—
Amsterdam, 20 bxs. W. & C. L. Ringrose

Bremen, 3 272 cs. Veltmann & Co.

Stearine—
Rotterdam, 22 brls. Wilson, Sons, & Co. Ltd.

Antwerp, 75 bgs. " "

Tallow—
New York, 173 brls. 75 tcs. Wilson, Sons, & Co., Ltd.

Ultramarine—
Rotterdam, 8 Todd & Son

" 4 A. Sanderson & Co

Yarnish—
Bergen, 1 cs. Wilson, Sons, & Co., Ltd.

White Lead—
Rotterdam, 13 cks. Sissons Bros. & Co.

" 12 A. Sanderson & Co.

" 2 Storry, Smithson, & Co.

" 8 Gibson Bros.

" 10 Storry, Witty, & Co.

Antwerp, 81 Bailey & Leatham

Rotterdam, 3 Hutchinson & Son

Zinc Oxide—
Rotterdam, 50 cks. Hutchinson & Son

GLASGOW.

Week ending November 2nd.

Asbestos—
Montreal, 240 bgs. G. Gillespie & Co.

Barytes—
Rotterdam, 114 cks.

Camphor—
Hamburg, 1 ck.

Chromium Acetate—
Rotterdam, 1 brl. J. Rankine & Son

Cobalt Ore—
N. Caledonia, 120 t. Nickel Co.

Colours—
Rotterdam, 23 cks. 2 bxs. J. Rankine & Son

Hamburg, 9 pkgs. 1 ck.

Dyestuffs—
Aniline
Rotterdam, 5 brls. J. Rankine & Son

Allzarine
Rotterdam, 48 brls. J. Rankine & Son

Madder
Rotterdam, 59 pkgs.

Sumac
Palermo, 200 brls. 1,300 bgs.

Farina—
Hamburg, 100 bgs.

Lead Acetate—
Hamburg, 15 cks.

Paraffin Scale—
Philadelphia, 385 brls.

Pitch—
Rotterdam, 11 cks. J. Rankine & Son

Plumbago—
Colombo, 1 pkge.

Potash—
Hamburg, 60 cks.

Pumice Stone—
Messina, 5 cs. 20 bgs.

Saltpetre—
Hamburg, 100 cks.

Soap—
Philadelphia, 350 brls.

Stearine—
Rotterdam, 17 cks. J. Rankine & Son

Sulphur—
Bordeaux, 31

Tartar—
Girgenti, 604 cwt. T. L. v. d. i.

Waste Salt—
Bordeaux, 5 cks.

White Lead—
Hamburg, 71 t.

Zinc Oxide—
Bombay, 49 cks.
Rotterdam, 65 J. Rankine & Son

Zinc Sulphate—
Rotterdam, 25 cks. J. Rankine & Son

Hamburg, 19 cks.

TYNE.

Week ending October 28th.

Alum Earth—
Hamburg, 100 bgs. Tyne S. S. Co

Colours—
Antwerp, 2 cks.

Limestone—
Antwerp, 2 crts.

Phosphate Rock—
Port Royal, 1,030 t. Blaydon Manure & Alkali Co.

Rosin—
New York, 200 brls.

Salt—
Hamburg, 488 bgs. Tyne S. S. Co.

Zinc Oxide—
Antwerp, 45 brls.

Zinc white—
Antwerp, 1 ck.

GOOLE.

Week ending October 25th.

Acetic Acid—
Rotterdam, 10 brls.

Alkali—
Hamburg, 11 cks.

Antimony—
Boulogne, 6 cks.

Carbonate of Lime—
Antwerp, 133 bgs.

Dyestuffs—
Allzarine
Rotterdam, 202 pkgs.

Logwood
Hamburg, 21 t.

Madder
Rotterdam, 4 cks.

Dyestuffs (otherwise undescribed)
Boulogne, 16 cks. 9 cs. 27 pkgs.

Farina—
Hamburg, 470 bgs.

Glucose—
Dunkirk, 100 bgs.
Calais, 100

Naphthaline—
Rotterdam, 5 cks.

Potash—
Hamburg, 9 cks.

Saltpetre—
Hamburg, 49 cks.
Rotterdam, 200 bgs.

Waste Salt—
Hamburg, 408 cks. 576 t. 1,537 bgs.

Zinc Oxide—
Antwerp, 45 cks.

Zinc Sulphide—
Rotterdam, 5 brls.

GRIMSBY.

Week ending October 28th.

Chemicals (otherwise undescribed)
Hamburg, 18 pkgs. 1 ck.

Dyestuffs (otherwise undescribed)
Dieppe, 25 cks.

Farina—
Hamburg, 520 bgs.

Size—
Antwerp, 4 cks.

Zinc Ashes—
Antwerp, 24 cks.

EXPORTS OF CHEMICAL PRODUCTS OF THE PRINCIPAL PORTS OF THE UNITED KINGDOM.

LONDON.

Week ending November 1st.

Acetic Acid—

Wellington, 1 t. £38

Acids—

Bombay, 6 cs. £11
Zanzibar, 35 pkgs. 25
Habana, 11 kgs. 27
Barbadoes, 4 14
Hong Kong, 20 17
Demerara, 11 57

Alum Cake—

Singapore, 50 t. £175

Copenhagen, 40 5 c. 105

Ammonia (Liquid)—

Constantinople, 9 c. £13

Ammonium Carbonate—

Wellington, 2 c. £6

St. Petersburg, 5 t. 5 161

Melbourne, 1 33

Odessa, 20 kgs. 31

Paris, 1 5 48

New York, 115 brls. 380

Bordeaux, 10 16

Ammonium Chloride—

Batoum, 3 t. £102

Bombay, 2 14 c. 104

Varna, 15 25

Shanghai, 1 2 40

Constantinople, 5 6 170

Galatz, 12 20

Ammonium Nitrate—

Algoa Bay, 5 t. 10 c. £327

Ammonium Sulphate—

Berbice, 13 t. £178

Sourabaya, 154 5 c. 2,156

Demerara, 89 16 1,267

Boracic Acid—

Sydney, 10 c. £19

Melbourne, 2 t. 79

Borax—

Wellington, 12 c. £15

Veile, 15 38

Calcutta, 16 26

Mauritius, 8 14

Melbourne, 5 t. 260

Hamburg, 6 cks. 45

Carbolic Acid—

Melbourne, 5 c. £13

Treport, 117 dms. 158

Rotterdam, 98 cks. 368

Montreal, 1 cs. 11

Yokohama, 20 47

Carbon Bisulphide—

Melbourne, 101 dms. £51

Caustic Potash—

Melbourne, 1 t. 2 c. £24

Caustic Soda—

Batoum, 35 t. 2 c. £350

Port Elizabeth, 2 66

Mauritius, 3 7 33

Dunedin, 6 37

Timaru, 2 7

Algoa Bay, 1 2 34

Natal, 14 25

Melbourne, 14 9

Chemicals (otherwise undescribed)

Algoa Bay, 7 cs. 4 c. £40

Auckland, 13 3 kgs. 12 pkgs. 143

Gibraltar, 2 11

Adelaide, 3 cks. 16

Brisbane, 2 1 kg. 21

Shanghai, 4 15

Antigua, 3 18

Chloride of Lime—

Adelaide, 1 t. 3 c. £12

Citric Acid—

Riga, 2 kgs. £17

St. Petersburg, 15 c. 126

Madras, 1 8

Hamburg, 1 t. 7 229

E. London, 5 46

Lisbon, 5 cks. 44

Genoa, 1 168

Brussels, 5 40

Coal Products—

Alizarine

Montreal, 10 cks. £147

Boston, 12 163

Bombay, 113 kgs. 507

Aniline Dyes

Brisbane, 1 cs. £10

New York, 40 brls. 455

Aniline Oil

Rotterdam, 11 dms. £330

Dunkirk, 5 180

Anthracene

Rotterdam, 417 cks. £2,342

Benzol

Rotterdam, 168 cks. £882

Terneuzen, 17 dms. 145

Coal Tar Dyes

Sydney, 1 kg. £22

Creosote Oil

Cette, 2,300 brls. £1,000

Naphtha

Canterbury, 20 dms. £24

Naphthaline

Hamburg, 7 cks. £64

Rotterdam, 8 9

New York, 722 bgs. 132

Nitro Naphthaline

New York, 7 brls. £53

Paraffin Wax

Riga, 7 brls. £20

Melbourne, 5 cs. 15

Pitch

St. John, N.B., 126 cks. £80

Philadelphia, 441 1,312 bgs. 417

Alexandria, 200 brls. 68

Boston, 270 cks. 120

Varna, 30 brls. 8

Galatz, 20 6

New York, 1,500 pkgs. 356

Tar

Bombay, 100 dms. £63

Danzic, 250 brls. 125

Tar Oil

Brussels, 3 cks. £9

Treport, 26 brls. 20

Coal Products (otherwise unier.)

Singapore, 15 dms. £13

Sydney, 200 39

Copper Sulphate—

Adelaide, 5 t. £75

Bombay, 2 11 c. 38

Christchurch, 1 2 15

Paris, 5 5 90

Odessa, 17 18 260

Pernambuco, 5 6

Cream of Tartar—

Melbourne, 5 t. 5 c. £379

Dunedin, 2 17 299

Brisbane, 3 8 238

Cairns, 3 21

Calcutta, 3 19

Rockhampton, 5 20

Wellington, 1 8 101

Sydney, 2 10 184

Adelaide, 10 41

Disinfectants—

Cape Town, 118 pkgs. £59

E. London, 4 c. 12

Sydney, 12 cs. 33

Melbourne, 999 dms. 594

Calcutta, 1 30

St. Petersburg, 4 cks. 40

Brussels, 10 50

Penang, 100 35

Wellington, 2 pkgs. 11

Flowers of Sulphur—

Pt. Elizabeth, 21 4 c. £28

Colombo, 10 kgs. 11

Natal, 1 9 12

Algoa Bay, 1 2 8

E. London, 6 1 69

Guano—

Guadeloupe, 350 t. £4,025

Morlaix, 114 1,140

Hypophosphite of Lime—

Philadelphia, 14 c. £247

Manure—

Montreal, 3 t. 6 c. £125

Lyttelton, 5 20

Berbice, 9 101

Demerara, 6 68

Bordeaux, 14 19 40

Cape Town, 10 50

Demerara, 25 263

Barbadoes, 50 450

Guadeloupe, 4 10 120

Nitric Acid—

Shanghai, 1 t. 5 c. £40

Rio de Janeiro, 14 cs. 40

Oxalic Acid—

Wellington, 13 c. £12

Phosphoric Acid—

Boston, 34 pkgs. £136

Phosphorus—

Adelaide, 2 cs. £21

Dunedin, 11 115

Hiogo, 5 55

Potash—

Wellington, 6 c. £8

Sydney, 5 20

Potash Crystals—

Calcutta, 6 c. £40

Potash Salts—

Algoa Bay, 18 t. 15 c. £2,456

Delagoa Bay, 7 10 975

Sydney, 4 18 638

Potassium Chlorate—

New York, 10 t. 16 c. £550

Madrid, 4 cs. 151

Hamburg, 1 26

St. Kitts, 5 19

Potassium Cyanide—

Madras, 2 cs. £16

Saltpetre—

Newcastle, 10 c. £11

Greytown, 10 11

Cape Town, 14 15

Sydney, 2 t. 45

Melbourne, 1 22

Oporto, 6 5 127

Ghent, 11 12

Pernambuco, 2 17 65

Sheep Dip—

Natal, 6 c. 240 dms. £65

Dunedin, 100 292

Hobart, 100 200

Lyttelton, 25 cks. 100

Kingston, 1 11

Punta Arenas, 392 pkgs. 228 cs. 1,115

Soda—

Kingston, Jam., 1 t. 5 c. £5

Algoa Bay, 3 15 128

Soda Ash—

Melbourne, 25 t. 2 c. £106

Sydney, 35 1 139

Soda Crystals—

Newcastle, 19 t. 10 c. £55

Sodium Bicarbonate—

Wellington, 2 t. £19

Varna, 1 8

St. Petersburg, 10 c. 5

Rockampton, 10 4

E. London, 3 20

Trinidad, 1 10 12

Sodium Carbonate—

Lyttelton, 1 t. £7

Algoa Bay, 1 19

Sodium Silicate—

Batoum, 4 t. 17 c. £23

Sodium Sulphate—

Norfolk, 200 t. £205

Sodium Supersulphate—

Adelaide, 1 t. £11

Strontium Nitrate—

New York, 5 t. 2 c. £123

Sulphur—

Cape Town, 17 c. £7

Philadelphia, 2 t. 0 79

Lyttelton, 2 15

E. London, 40 pkgs. 21

Sulphuric Acid—

Colombo, 10 cs. £8

Penang, 1 t 5 c. 14

E. London, 14 12

Aden, 10 11

Tartaric Acid—

Odessa, 1 t. £98

Rockhampton, 2 c. 10

Adelaide, 20 cs. 54

Wellington, 10 52

Brisbane, 5 27

Melbourne, 2 t. 5 215

Newcastle, 10 3 17

Newcastle, 10 48

LIVERPOOL.

Week ending Nov. 1st.

Acetic Acid—

Lisbon, 18 c. £15

Albumen—

Lisbon, 4 c. £12

Rouen, 11 29

Alkali—

Montreal, 8 t. £44

Alum—

Malta, 2 t. 4 c. £11

Alexandria, 7 9 37

Syra, 2 1 10
Amsterdam, 3 3 16
Bombay, 12 64
Calcutta, 14 77
Vigo, 2 4 2 q. 13
Montreal, 10 60

Alum Cake—

Calcutta, 2 t. 3 c. £5

Alumina Sulphate—

Quebec, 25 t. 2 q. £83

Ammonium Carbonate—

Montreal, 1 t. £34

Trieste, 1 1 c. 34

Ammonium Chloride—

Galatz, 1 t. £35

Genoa, 19 c. 3 q. 25

Naples, 3 1 3 116

Malta, 4 7

Philadelphia, 16 2 2 353

Syra, 10 2 19

Piraeus, 15 1 27

Monrovia, 1 35

Ammonium Sulphate—

Barcelona, 10 t. 5

Macao, 2	Cabedello, 108	Calcutta, 802	Calcutta, 7
Malmö, 6	Calcutta, 7 brls. 13 dms.	E. London, 8	Candia, 21
Montreal, 75 20 bxs.	Cordenas, 4 cks.	Ghent, 220	Constantinople, 2
Pernambuco, 65	Hamburg, 9	Gr. Bassa, 18	Dunedin, 2
Tampico, 250	Havana, 30 dms.	Madras, 2 2	Genoa, 55
Vera Cruz, 15	Hong Kong, 40	Montreal, 502	Ghent, 100
Chemicals (otherwise undescribed)	M. Video, 1	Noqui, 125	Göthenburg, 100
Boston, 9 t. 17 c. £172	Pernambuco, 20 100	Old Calabar, 25	Hamburg, 300
Alexandria, 1 10 52	Santa Martha, 200	Sulynali, 20	Lisbon, 40
Braila, 12 20	Painters' Colours—	Abonnema, 10	Messina, 2
Trebzonde, 1 4 7	Alexandria, 18 kgs.	Adjuah, 10	Naples, 21
Trieste, 1 35	Arroyo, 12 3 brls	Antigua, 6	Reval, 9
Genoa, 1 36	Bahia, 12 5 3 cs.	Baltimore, 100	Rotterdam, 350
Hamburg, 1 5 9	Belize, 100 5	Boston, 50	Salonica, 30
Beyrout, 6 4 217	Bombay, 5	B. Ayres, 23 16	Valencia, 70
Philadelphia, 13 325	Bordeaux, 3	Callao, 1 10	
Bombay, 4 10 153	B. Ayres, 325 138 50	Gr. Bassa, 2 11	
Chloride of Lime—	Calcutta, 30	Melbourne, 100	
Gr. Canary, 1 t. 9 c. £16	Havana, 4	Newcastle, 150	
China Clay—	Hamburg, 5 cks. 2	New York, 198	
Boston, 1,102 t. 11 c	Hong Kong, 100 kgs. 2	Sydney, 604 5	
Ferrol, 2 12	Kingston, Jam., 1	Salt Cake —	
Lisbon, 2 4	Manilla, 17 cks.	Wellington, 2 t. 9 c. £7	
New York, 338 cks.	Montreal, 30 138	Philadelphia, 50 4 88	
Bombay, 80	New York, 9	Baltimore, 411 15 685	
Montreal, 100	Pt. Natal, 19	Bari, 106 236	
Chromium Trioxide—	Puerto Cabello, 3	Sheep Dip —	
Havre, 4 c. £13	Rotterdam, 21	B. Ayres, 31 t. 10 c 3 q. £778	
Citric Acid—	St. John's, N.F., 60	Soap—	
Genoa, 3 c. £24	San Juan, 150	Accra, 235 bxs.	
Coal Products—	Seville, 24	Akassa, 24	
Aniline Colours	Sherbro, 2	Algoa Bay, 260	
Shanghai, 50 cs.	Sierra Leone, 50	Appam, 50	
Aniline Oil	Valleyfield, P.I., 1	Axim, 148	
Rouen, 40 dms.	Valparaiso, 6 3 dms.	Baltimore, 25	
Aniline Paste	Zante, 5 brls.	Barbadoes, 1,025	
Lisbon, 1 ck.	Ambuzette, 1	Bathurst, 183	
Benzine	Assinee, 2	Boma, 315	
San Juan, 2 cs.	Bathurst, 48 kgs. 1	Bombay, 1,946 78 cs.	
Sulina, 60 dms.	Bey Beach, 30	Brass, 200	
Pitch	Bilbao, 4 brls. 12	Calcutta, 6 150 bdl.	
Cette, 765 t.	Bremerhaven, 8 1	Cameroon, 320	
Tar	Ceara, 7 20	C. C. Castle, 116 1	
Sierra Leone, 10 brls.	Constantinople, 725	Cape Town, 20	
Valparaiso, 50	Iquique, 4 cs	Conakry, 60	
M. Video, 20	Lisbon, 9 brls.	Demerara, 2,300 3	
Copperas—	Marseilles, 45	Gibraltar, 230	
Quebec, 9 t. 17 c. 2 q. £21	M. Video, 7 15	Hamburg, 250	
Canca, 3 15 7	Nassau, 63 kgs. 6	Kingston, Jam., 3	
Alexandria, 7 14	Philadelphia, 200	Lagos, 10	
Almeria, 5 10	Piræus, 7	Malta, 50 33	
Copper Sulphate—	Rangoon, 50 bgs	Mumford, 120	
Genoa, 4 t. 8 c. £64	Rio de Janeiro, 10 6 1 cs.	N. Orleans, 200	
Seville, 6 1 2 q. 97	Savanna, 40	New York, 670 6	
Ancona, 2 5 3 33	Singapore, 100 brls.	Oporto, 250	
Venice, 4 8 2 64	Sydney, 40	Para, 1	
Gr. Canary, 1 5 20	Yokohama, 240	Pt. Natal, 30	
Tampico, 2 11 36	Phosphate of Lime—	Pt. Said, 10 brls. 49 12 kgs.	
Rouen, 22 10 360	Ferrol, 9 c. 3 q. £14	Rotterdam, 1,005	
Oporto, 32 3 3 515	Phosphorus—	S. John's, Nfil., 310	
Lisbon, 37 1 515	Shanghai, 50 cs. £500	Salt Pond, 106	
Melbourne, 5 77	Hioho, 15 182	Shanghai, 3,000 2	
Dextrine—	Yokohama, 20 256	Sierra Leone, 100 5	
Lisbon, 2 cks.	B. Ayres, 2 t. 2 c 286	Underhill, 10	
Guano—	Potash—	Valparaiso, 6	
Malaga, 10 t. £105	Calcutta, 5 c. £20	Victoria, W.C.A., 40	
Gypsum—	Potassium Bichromate—	B. Ayres, 1 4	
Lisbon, 6 t. 11 c. £16	Alexandretta, 8 c. £16	Cairo, 14	
New York, 29 12 110	Ghent, 2 t. 10 96	Callao, 3	
Iron Sulphate —	Aleppo, 14 2 q. 30	Curacao, 345	
Gr. Canary, 1 t. 1 c. £18	Potassium Carbonate—	Ghent, 14	
Lime—	Baltimore, 15 c. £16	Havre, 437	
Mucilla, 2 t. 10 c.	Potassium Chlorate—	Limassol, 6	
Magnesia—	Rotterdam, 1 t. 14 c. £104	Singapore, 900 6	
Barcelona, 8 t. 5 c. £126	Copenhagen, 4 10 278	Smyrna, 6	
Magnesium Carbonate—	Cape Town, 8 480	Sydney, 1,480	
Manila, 10 cs.	Calcutta, 1 10 63	Trinidad, 1,700	
Vera Cruz, 6	New York, 22 15 1,329	Soda—	
Magnesium Chloride—	Hioho, 28 1	Odessa, 31 brls.	
Montreal, 15 t. 11 c. £41	Hong Kong, 3 10 1,774	Soda Alkali—	
Magnesium Sulphate—	Kobe, 5 286	Colborne, 20 brls.	
Lisbon, 2 t. 10 c. £40	M. Video, 1 10 40	Leghorn, 40	
Manganese—	Vera Cruz, 1 13 142	Melbourne, 44	
New York, 11 t. 10 c.	Seville, 1 5 21	Montreal, 80	
Baltimore, 13	Kalmar, 1 18 113	Smyrna, 125	
Marseilles, 10 cks.	Genoa, 2 5 107	Toronto, 20	
Manure—	Hamburg, 2 5 107	Soda Ash—	
Valencia, 65 t. 11 c. £275	Boston, 1 10 84	Antwerp, 10 cks. 300 bgs.	
Oxalic Acid—	Alexandria, 2 10 36	Baltimore, qty. 168 2,394 kgs.	
Genoa, 8 c. £11	Yokohama, 2 10 143	Barcelona, 45	
Paint—	B. Ayres, 2 114	Boston, 79 cs. 567	
Callao, 24 dms.	Antwerp, 5 286	Brisbane, 70	
Genoa, 7 cs.	Potassium Silicate—	Fairwater, 43	
Iloilo, 24 kgs.	Amsterdam, 1 t. 5 c. 1 q. £6	Melbourne, 226	
Kingston, Jam., 10 brls. 298	Pyrolignite of Lime—	M. Video, 25 brls.	
Malta, 6	Lisbon, 2 t. 1 q. £20	Montreal, 176 tcs. 36 1,040 112	
Mollendo, 4 cks	Rosin—	N. York, 616 127 6,092 400 bls.	
Para, 11 20 12 cs.	Rotterdam, 26 brls.	Philadelphia, 68 4,024 448 tcs.	
Pimental, 12	Salt—	Pittsburg, 30	
Pt. Elizabeth, 12	Amsterdam, 70 t.	Smyrna, 35	
Puerto Plata, 7	Antwerp, 50	Venice, 35	
Vera Cruz, 4	Brisbane, 350	Volo, 10	
		Wellington, 137	
		Yokohama, 100	
		B. Ayres, 25	

HULL.

Week ending October 28th.

Alkali—Catania, 20 cks.
Libau, 20
Wasa, 3 cs. 42**Ammonium Sulphate—**

Hamburg, 464 bgs.

Aniline Salts—

St. Petersburg, 38 cks.

Benzol—Hamburg, 17 dms.
Rotterdam, 10 cks.**Bleaching Powder—**

Helsingfors, 21 cks.

Borax—Christiania, 2 cks.
Cologne, 3
Riga, 3
Stettin, 10**Caustic Soda—**Abo, 1 ck.
Bari, 157 dms
Reval, 100
Wyburg, 2**Chemicals (otherwise undescribed)**Antwerp, 20 cs.
Amsterdam, 8 cks.
Bergen, 5
Christiania, 10 20 pks.
Danzig, 50 266
Fiume, 30
Gothenburg, 40 7 221 pkgs.
Hamburg, 7 55
Helsingfors, 20
Libau, 4 40
Rotterdam, 12 50
Riga, 12 50
St. Petersburg, 22 1 40
Stavanger, qty.
Stettin, 13
Wasa, 1 1**Cottonseed Oil—**Amsterdam, 87 c.
Christiansand, 7
Gothenburg, 65
Hamburg, 436
Helsingfors, 168
Norfolk, 205
Rotterdam, 250
Stettin, 605
Trieste, 605**Creosote—**Dunkirk, 25 cks.
Danzig, 50
Hamburg, 5**Dyestuffs (otherwise undescribed)**Danzig, 3 cs.
Reval, 2 cks. 2
Rotterdam, 3
Riga, 2 4 bls.
St. Petersburg, 40
Stettin, 1 183 bgs.**Guano—**

Dunkirk, 202 bls.

Linseed Oil—Bergen, 37 c.
Christiania, 408
Christiansand, 28
Cologne, 100
Drontheim, 58
Fiume, 85
Hamburg, 252
Rotterdam, 17
Stavanger, 86
Trieste, 40**Manure—**

Dunkirk, 216 bls.

Mineral White—

Rotterdam, 100 bls.

Naphtha—

Dunkirk, 6 cks.

Paint—

Finishing, 1 ck.

Painters' Colours—Antwerp, 14 pks. 63 cks. 1 cs. 21 dms.
Amsterdam, 14
Boston, 20
Bergen, 1 71
Bremen, 4
Christiania, 3 66 pkgs
Cologne, 2
Dunkirk, 18
Gothenburg, 36 5
Ghent, 13 1
Hamburg, 13
Libau, 4
Messina, 4
New York, 55
Rotterdam, 4

Riga, 25 6

Rouen, 8

Stettin, 10

Pitch—

Antwerp, 410 t.

Helsingfors, 58 cks.

Soap—Bergen, 1 cs.
Christiania, 121
Drontheim, 40**Soda Crystals—**

Bari, 30 cks.

Tallow—

Rotterdam, 36 cks.

Tar—Amsterdam, 5 cks.
Christiania, 10
Danzig, 2
Helsingfors, 50
Norfolk, 20**Tar Salts—**

Reval, 42 cks.

Yarnish—Danzig, 4 cks. 2 cs.
Gothenburg, 2**GLASGOW.**

Week ending November 2nd.

Acetic Acid—

Quebec, 2 t. £40

Ammonium Chloride—

Bilbao, 5 t. 13½ c. £100

Ammonium Sulphate—

Charente, 97 t. 2½ c. £1,358

Valencia, 236 ¾ 3,003

Bleaching Powder—

Calcutta, 58 t. 16 c. £750

Boston, 9 t. 2½ 85

Boric Acid—

Hamburg, 1 ck. £3

Borax—

Quebec, 13 t. 7½ c. £403

Rouen, 1 19½ 61

Caustic Soda—

Valencia, 18 t. 7 c. £184

Havana, 2 16 35

New York, 88 17½ 753

Coal Products—

Creosote, 280 t. 17 c. £500

Naphtha—

Rouen, 29 t. 13½ c. £460

Pitch—

Valencia, 120 t. 1 c. £184

Alexandria, 8 15 32

Bombay, 15 9 36

New York, 72 12 121

Quebec, 58 90

Oporto, 201 4 265

Amsterdam, 200 280

Tar

Colombo, 19 t. 13½ c. £34 158.

Calcutta, 7 8 52

Tar Oil

Hamburg, 9 dms. £188

Coal Products (otherwise undes.)

Rotterdam, 10 dms. £80

Copperas—

Montreal, 14 t. 8 c. £21

Bombay, 21 15 40

Cottonseed Oil—

Demerara, 3 t. 8½ c. £35

Dextrine—

Lisbon, £25

Dyestuffs—

Extracts

Quebec, 5 t. 12½ c. £247

Montreal, 16 2 445

Lisbon, 78

Fustic Extract

Montreal, 2 t. 7½ c. £94

Logwood

Quebec, 12 t. 13½ c. £115

Valencia, 6 15½ 71

Oporto, 9 15 87

Montreal, 9 15½ 71

Lisbon, 4 1½ 31

Linseed Oil—

Cape Colony, 2 t. ½ c. £52

Chili, 3 2½ £86. 108.

Peru, 3 7½ £84

Demerara, 1 14½ 29

Montreal, 4 5½ 101

Quebec, 12 10½ 263

Magnesium Sulphate—

Rouen, 7 t. £27

Manure—

Demerara, 20 t. £70

Oporto, 127 1 c. 923

Nitrate of Lead—

Quebec, 5 t. 5¼ c. £90

Paint—

Singapore, 10 t. 14½ c. £137

Havana, 1 24

B. Ayres, 6 17 90

New York, 2 9 £51. 108.

Paint & Painters' Colours—

Chili, 14 t. 2½ c. £232

Painters' Colours—

Colombo, 21 t. 4½ c. £201

Calcutta, 6 7½ 158

Cape Colony, 52

Natal, 152

Shanghai, 302

Japan, £22. 135.

Calcutta, £306

Bombay, 151

Paraffin Wax—

Cape Colony, 1 t. 10 c. £30

Hamburg, 70 bgs. 154

Rouen, 12 3 320

Alexandria, 1 6 28

Bayonne, 2 4½ 26

Bilbao, 2 18 50

Lisbon, 20 430

Potassium Bichromate—

Rouen, 13 t. 17½ c. £509

Valencia, 21 14½ 863

Antwerp, 2 9½ 90

Potassium Prussiate—

Valencia, 13,440 lbs. £450

Montreal, 1 t. 1½ c. 78

Pyrolignite of Iron—

Hamburg, 23 cks. £41

Soap—

Cape Colony, 1 t. 9 c. £31

New York, 5 10 90

Sodium Arseniate—

Lisbon, 1 t. 18 c. £21

Sodium Bichromate—

Valencia, 6 t. 7½ c. 231

Rouen, 52 10½ 1,626

Antwerp, 2 10½ 80

Sodium Sulphate—

Quebec, 13 t. 12½ c. £26

Sulphuric Acid—

Cape Colony, 3 t. 7 c. £20

Bombay, 75 1,200

Tallow—

Trinidad, 1 t. 5 c. £40

Rotterdam, 8 12 360

Tartaric Acid—

Lisbon, 5 c. £25

Varnish—

Chili, 4½ c. £23

White Lead—

Cape Colony, 4 t. 9½ c. £78

TYNE.

Week ending October 28th.

Alkali—

Hamburg, 4 t. 13 c.

St. Petersburg, 106

Alum—

Rotterdam, 10 t. 2 c.

Ammonium Sulphate—

Hamburg, 20 t.

Antimony—

New York, 22 t. 10 c.

Hamburg, 2 10

Rotterdam, 10

Barium—

Dunkirk, 10 c.

Barium Carbonate—

New York, 36 t. 4 c.

Barium Hydrate—

Hamburg, 10 t. 6 c.

Blanc Fixe—

St. Petersburg, 4 t. 12 c.

Bleaching Powder—

New York, 115 t. 6 c.

Venice, 10 1

Fiume, 18 4

Antwerp, 28 1

Hamburg, 12

St. Petersburg, 271 10

Christiania, 30

Odense, 10

Copenhagen, 5

Rotterdam, 4 16

Newfairwater, 23 17

Gothenburg, 5 5

Caustic Soda—

New York, 73 t. 11 c.

Hamburg, 9 9

St. Petersburg, 104 12

Copenhagen, 2 6

Libau, 5 12

Rotterdam, 7 6

Newfairwater, 15 3

Abo, 1

Creosote—

Bergen, 4 c.

Guano—

Nice, 18 c.

Litharge—

Hamburg, 10 t. 6 c.

Riga, 6

Abo, 5

Stotsbryggan, 5

Magnesia—

New York, 1 t. 6 c.

Hamburg, 11

Riga, 10

Naphthaline—

Riga, 20 t. 4 c.

Paint—

Antwerp, 3 c.

Salt—

Laurvig, 2 t.

Soda—

New York, 200 t.

Antwerp, 9 18 c.

Christiania, 9 15

Odense, 5

Randers, 5

Copenhagen, 2 13

Rotterdam, 59 17

Svendborg, 40 3

Drontheim, 10 1

Abo, 9 6

Soda Ash—

Trieste, 33 t. 15 c.

Antwerp, 6 17

St. Petersburg, 80 9

Christiania, 6 11

Danzig, 9 18

Lisbon, 15 1

Gothenburg, 119

Sodium Sulphate—

Gothenburg, 250 t. 1 c.

Christiania, 5

Copenhagen, 3 2

Libau, 10 5

Sulphur—

Gothenburg, 195 t.

Malmö, 10

Riga, 15

Copenhagen, 1

Ghent, 5

Newfairwater, 30

Oscarshamn, 140

Superphosphate—

Nice, 19 c.

La Rochelle, 509 t. 4

Tallow—

Hamburg, 1 t. 2 c.

Varnish—

Christiania, 1 c.

White Lead—

New York, 15 t.

PRICES CURRENT.

WEDNESDAY, NOVEMBER 8th, 1891.

PREPARED BY MESSRS. HIGGINBOTTOM AND CO., 116, PORTLAND STREET, MANCHESTER.

The values stated are F.O.R. at maker's works, or at usual ports of shipment in U.K. The price in different localities may vary.

Acids:—

	£	s.	d.
Acetic, 25% and 40%	per cwt.	7/6	& 11/3
" Glacial	"	50/-	
Arsenic S.G., 2000°	"	0	14 6
Fluoric	per lb.	0	0 3 1/4
Muriatic (Tower Salts), 30° Tw.	per bottle	0	0 10
(Cylinder), 30° Tw.	"	0	3 0
Nitric 80° Tw.	per lb.	0	0 1 3/4
Nitrous	"	0	0 1 3/4
Oxalic	nett	0	0 3 1/4
Phosphoric, 1750°	"	0	1 2 1/2
Picric	"	0	1 0
Sulphuric (fuming 50%)	per ton	15	10 0
(monohydrate)	"	5	10 0
(Pyrites, 168°)	"	3	0 0
" 150°	"	1	5 0
(free from arsenic, 145°)	"	1	6 0
Sulphurous (solution) S.G. 1025	"	3	0 0
Tannic (pure)	per lb.	0	1 2
Tartaric	"	0	0 11 1/2
Arsenic, white powdered	nett per ton	13	5 0
Alum (loose lump)	"	5	2 6
Alumina Sulphate (pure)	"	5	0 0
Aluminoferrous	"	2	10 0
Aluminium	per lb.	0	3 0
Ammonia, Anhydrous	"	0	1 :
" 880=28°	per lb.	0	0 3
" =24°	"	0	0 2 1/4
Carbonate	nett	0	0 3 1/2
Muriate	per ton	23	0 0
" (sal-ammoniac) 1st & 2nd	per cwt.	37/-	& 35/-
Nitrate	per ton	42	0 0
Phosphate	per lb.	0	0 10 1/2
Sulphate (grey) London	per ton	12	12 6
" (grey) Hull	"	12	12 6
Aniline Oil (pure)	per lb.	0	0 6 1/4
Aniline Salt	"	0	0 5 1/4
Antimony	per ton	45	10 0
(tartar emetic)	per lb.	0	1 0
(golden sulphide)	"	0	0 10
Barium Chloride	per ton	7	10 0
Carbonate (native)	"	3	10 0
Sulphate (native levigated)	"	45/-	to 75/-
Bleaching Powder, 35%	nett	8	5 0
Liquor, 7%	"	3	10 0
Bisulphide of Carbon	"	11	15 0
Chromium Acetate (crystal)	per lb.	0	0 6
Calcium Chloride	per ton	2	5 0
China Clay (at Runcorn) in bulk	"	17/6	to 35/-

Coal Tar Products and Dyes:—

Alizarine (artificial) 20%	net per lb.	0	0 8
Magenta	"	0	3 9
Anthracene, 30% A, f.o.b. London	per unit per cwt.	0	1 2
Benzol, 90% nominal	per gallon	0	1 6
50/90	"	0	1 7
Carbolic Acid (crystallised 40°)	per lb.	0	0 5 3/4
(crude 60°)	per gallon	0	1 7
Creosote (ordinary)	"	0	0 2 1/2
(filtered for Lucigen light)	"	0	0 3
Crude Naphtha 30% @ 120° C.	"	0	0 10
Grease Oils, 22° Tw.	per ton	2	5 0
Pitch, f.o.b. Liverpool or Garston	"	1	6 0
Solvent Naphtha, 90% at 160°	per gallon	0	1 5
"Lucigen" and "Wells" Oils	"	0	0 2 1/2
Copper	per ton	42	6 3
Sulphate	"	16	0 0
Oxide (copper scales)	"	40	0 0
Glycerine (crude)	"	13	0 0
(distilled S.G. 1250°)	"	43	0 0
Iodine	nett, per oz.	0	0 9
Iron Sulphate (copperas)	per ton	1	12 6
Sulphide (antimony slag)	"	2	0 0
Lead (sheet) for cash	"	10	17 6
Litharge Flake (ex ship)	"	13	0 0
Acetate (white)	"	25	15 0
" brown	"	17	10 0
Carbonat. (white lead) pure	"	20	0 0
Nitrate	"	20	0 0

Lime, Acetate (brown)	per ton	7	0 0
" (grey)	"	11	5 0
Magnesium (ribbon and wire)	per oz.	0	2 :
Chloride (ex ship)	per ton	2	7 6
Carbonate	per cwt.	1	17 6
Hydrate	per ton	17	0 0
Sulphate (Epsom Salts)	per ton	2	19 0
Manganese, Sulphate	"	17	15 0
Borate	per cwt.	2	12 6
Ore, 70%	per ton	4	5 0
Methylated Spirit, 61° O.P.	per gallon	0	2 0
Naphtha (Wood), Solvent	"	0	3 9
" Miscible, 60° O.P.	"	0	4 9

Oils:—			
Cotton-seed	per ton	23	0 0
Linseed	"	22	10 0
Petroleum, Russian	per gallon	0	0 3 1/4
American	"	0	0 5 1/4
Phosphorus (yellow)	per lb.	0	2 :
(red)	"	0	2 9
Potassium (metal)	per oz.	0	3 7
Bichromate	nett per lb.	0	0 4 1/4
Carbonate, 90% (ex ship)	per ton	16	10 0
Chlorate	per lb.	0	0 8
Cyanide, 98%	"	0	2 0
Hydrate (Caustic Potash) 80/85%	per ton	21	15 0
" (Caustic Potash) 75/80%	"	20	10 0
" (Caustic Potash) 70/75%	"	20	0 0
Nitrate (refined)	per cwt.	1	2 6
Permanganate	per cwt.	3	5 0
Prussiate Yellow	per lb.	0	0 8 1/4
Sulphate, 90% (ex ship)	per ton	9	15 0
Muriate, 80% (do.)	"	8	0 0
Silver (metal)	per oz.	0	2 7 1/2
Nitrate	"	0	2 10
Sodium (metal)	per lb.	0	3 4
Carb. (refined Soda-ash) 48%	nett per ton	5	10 0
" (Caustic Soda-ash) 48%	"	4	10 0
" (Carb. Soda-ash) 48%	"	4	10 0
" (Carb. Soda-ash) 58%	"	4	5 0
" (Soda Crystals)	"	3	5 0
Acetate (ex-ship)	"	16	0 0
Arseniate, 45%	"	11	0 0
Chlorate	per lb.	0	0 8 1/4
Borate (Borax)	net, per ton	28	10 0
Bichromate	per lb.	0	0 3 1/4
Hydrate (77% Caustic Soda) (f.o.b.) net pr. ton	10 ton lots	12	0 0
" (74% Caustic Soda)	"	11	10 0
" (70% Caustic Soda)	"	10	15 0
" (60% Caustic Soda)	"	9	15 0
" (60% Caustic Soda, cream) (f.o.b.)	"	9	10 0
Bicarbonate	"	7	0 0
Hypsulphite	"	6	10 0
Manganate, 30%	"	16	0 0
Nitrate (95%) ex-ship Liverpool	per cwt.	0	9 1 1/4
Nitrite, 98%	per ton	29	10 0
Phosphate	"	15	0 0
Silicate (glass)	per ton	5	7 6
" (liquid, 100° Tw.)	"	4	5 0
Stannate, 40%	per cwt.	3	0 0
Sulphate (Salt-cake)	per ton	1	2 6
" (Glauber's Salts)	"	1	10 0
Sulphide	"	8	10 0
Sulphite	"	5	15 0
Strontium Hydrate, 100%	"	8	10 0
Sulphocyanide Ammonium, 95%	per lb.	0	0 7
Barium, 95%	"	0	0 5 1/4
Potassium	"	0	0 7
Sulphur (Flowers)	per ton	8	0 0
(Roll Brimstone)	"	6	10 0
Brimstone: Best Quality	"	4	2 6
Superphosphate of Lime (26%)	"	2	7 6
Tallow	"	28	0 0
Tin (English Ingots)	"	81	10 0
Tin Crystals	per lb.	0	0 6 1/4
Zinc (Spelter)	per ton	17	0 6
Chloride (solution, 96° Tw.)	"	5	15 0

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Notices.

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Communications for the Editor, if intended for insertion in the next week's issue, should reach the office not later than **Tuesday morning.**

Readers are invited to forward items of intelligence, or cuttings from all newspapers, of interest to the trades concerned.

Articles, reports, and correspondence on all matters of interest to the chemical and allied industries, home and foreign, are solicited. Correspondents should condense their matter as much as possible, write on one side only of the paper, and in all cases give their names and addresses, not necessarily for publication. Sketches should be sent on separate sheets.

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Prepaid Advertisements of Situations Vacant, Premises on Sale or To be Let, Miscellaneous Wants, and Specific Articles for Sale by Private Contract are inserted in the *Chemical Trade Journal* at the following rates:—

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Advertisements intended for insertion in the current week's issue should reach the office by **Wednesday morning** at the latest.

CURRENT TOPICS.

ZEAL V. DISCRETION.

FIRES at chemical works need prompt attention, and considerable judgment has frequently to be exercised in deciding upon the best line of action. But while expedition is essential, a due observance of the old adage of "more haste less speed" is not less so.

An amusing instance of the verification of this proverb is to be found this week in the misfortunes of the St. Helens Fire Brigade in their zealous efforts to cope with the fire at the Greenbank Alkali Works, reported elsewhere in these columns. If the performances which took place on Monday and at the recent fire at Kurtz's works, are to be repeated, an ambulance brigade had better attend the fire brigade on its journeyings to collect and attend to the trail of wounded and disabled firemen who have been slewed off the engine into the gutter at sharp corners, rammed against advertisement hoardings, or demolished by the reckless hose-reel car, as in its mad career, it presses so hard upon the fire engine which rests upon the curb stone in a state of collapse, that it runs amuck of it and completes the wreck. At the Kurtz fire, the facts of the reins becoming crossed in the excitement of the moment, so that instead of going round the corner, the horses went to the right-about, and ran tilt into a boarding; and of their having also when put right, next run on to the pavement, so that the engine had to be "conducted" into the way it should go, are merely amusing incidents, because when the engine ultimately did arrive, it was not wanted. Such escapades deserve another name, however, when property, and possibly life, are at stake. Taking into consideration the situation of the vitriol chambers, which on one side are about 40 yards above the level of the ground, it seems strange that the fire was not attacked at other points, on the work's side, where the chambers would be more easily got at. Perhaps those in charge, however, feared lest the erratic fire engine should recover itself, and in conjunction with the frisky hose-car, begin waltzing round the under framing of the chambers and the rest of the plant. Not so long ago a water tank burst and deluged the rope-walk which runs along the side of the chambers. If this had occurred again on Monday it would perhaps have extinguished the fire—and the fire brigade as well; though seemingly St. Helens would not have suffered such a very serious loss at their annihilation. The fire was in deed disastrous, and scarcely more so to the works than the fire brigade.

THE ANTI-ADULTERATION CRUSADE.

The publication of the report of the Local Government Board on adulteration in the past year, only reveals once more the comparative uselessness of some of the work done by that wonderfully and fearfully constructed piece of machinery. The lengthy tables connected with the working of the Food and Drugs Act are practically no good, and the only really important communications are to the effect that in

many places the Act is a dead letter, and that magistrates are reluctant in imposing substantial penalties—both of which interesting facts most people are only too cognisant of.

No doubt, the real intention of the Food and Drugs Act is to prosecute for intentional adulteration, and not for the vending of produce naturally poor. But there comes a stage when it is desirable to know how poor milk or "mixtures" can be made, and yet be sold with impunity. When water is the predominant constituent of "poor" milk (which has not been adulterated, of course), and when a mixture of chicory and coffee is composed of 3 per cent. of coffee and 97 per cent. of "mixture," it becomes of some importance to know what is what.

If it is hard and unjust for the poor man to be subjected to legal penalties "because his cow does not produce as good milk as the better-bred and better-fed herd of his rich neighbour," it is equally as hard that the poor man should have to pay the same price for the inferior milk as his better-bred and better-fed neighbour pays for his superior milk. But these difficulties, if they are to be met with success, entail the adoption of standards, and the authorities have a most remarkable abhorrence of standards, be they for milk, butter, beer, coffee, or sewage effluents. The standard system undoubtedly has its drawbacks, but when you have to choose between a standard, or buying 97 pounds of chicory for every 100 pounds of a mixture which is supposed to be composed of coffee and chicory, not chicory and coffee, the former surely is the lesser evil.

THE RESPONSIBILITIES OF KEEPING CHEMICALS.

The report of an important decision in the Court of Appeal is given in our columns this week. The necessity of having a properly equipped laboratory or room set apart for the storage of chemicals and the performance of chemical operations is brought prominently before the notice of all teachers of chemistry. The charge of negligence brought home to the defendant in this case, and the grounds on which his appeal was dismissed are worthy of something more than casual consideration. The mischievous proclivities of boys seem to constitute no defence, in the same way that *ignorantia juris non excusat*. Whether the bottle had been locked up or not, the fact remained that it had been found in the conservatory by the boy, and it was negligence for it to have been possible to get there. To Lord Justice Lopes this seemed to be the genuine aspect of the case, while Lord Esher, in dispelling the idea that a new trial was necessary, said he should be surprised if a jury on the same evidence found a different verdict.

HOW TO DISPOSE OF LIQUID MANURE.—The following is a useful method of preserving the readily decomposable nitrogen compounds occurring in urine. The liquid manure is allowed to collect in a suitable vessel, and sufficient sulphuric acid is then added to fix the contained nitrogen. When the vessel is full, the liquid manure is carted to a place prepared for its reception by heaping dry mould (or peaty soil) on to a concrete floor to a height of 20 inches. The spot should be protected from rain by a light roof. About 1 cwt. of mould may be conveniently used for every 56 gallons liquid manure. Whilst the vessel employed is filling again, which will take say 14 days, the saturated mould should be turned over with a spade every third or fourth day. This can easily be done in 14 minutes for half a ton of mould. After from 8 to 14 days the mass will be completely dry, and will contain, in a non-volatile form, all the fertilising compounds of the liquid manure. When the vessel is full again the liquid manure is once more poured on the same mould, and this is dried again in the way described while the vessel is refilling. The procedure is repeated till the mould has absorbed as much as possible. It should stand five or six soakings. In experiments made last year, 2 cwt. peat litter absorbed 480 gallons horse urine between 21st May and 1st August.—*Trop. Agricult.*

EXTRACTION OF GOLD & SILVER FROM PYRITES.

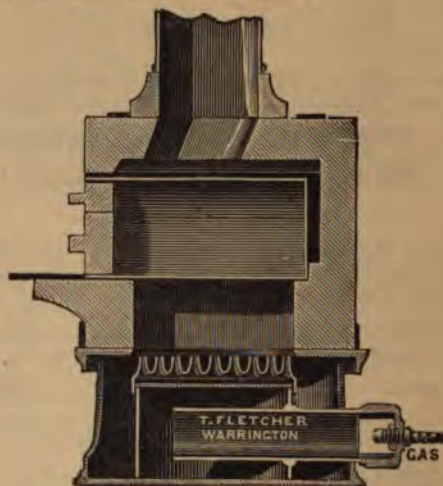
By J. G. SALTMARSH.

II.

IN the first article (*C.T.J.* 336, p. 274) a general outline of the process of extraction was given; it now remains to describe how the details are carried into practice. In the Manchester Technical Laboratory, the assaying is effected in a muffle heated by gas, the running down of the silver-lead being brought about in the same way, and this method is much to be commended where gas is available, on account of general cleanliness and the facility with which the temperature of the muffle can be regulated. Where, however, gas is not available, a wind furnace and the muffle furnace must be built of good fire-bricks. The general design may be gathered from the accompanying illustrations.

With respect to the muffle furnace, the following particulars may not be out of place, taken from the late Dr. Percy's laboratory. The muffle itself had a length of 11 inches, a breadth of 5 inches, and was 5 inches in height, exposed to the heat of the fire in all parts except one inch in length. The height of the mouth of muffle from ground was four feet; distance between side of muffle and side of furnace, four inches; space between bottom of muffle and fire-bars, four inches; and between top of muffle and top of furnace, seven inches. The gas muffles of Messrs. J. J. Griffin and Sons answer their purpose admirably.

In a paper read before the Society of Chemical Industry in 1889, the reader said, "After having worked with many forms, we find that no furnaces are to be compared, both for accuracy in assaying and for ease and comfort in working, with Fletcher's gas furnaces. At the Chester Assay Office a pair of these furnaces have been used for the last eight years, and have been found most satisfactory."



FLETCHER'S GAS MUFFLE.

It is not necessary to describe here the method of cupel making; this can be found in any treatise on practical assaying, and requires, moreover, a certain amount of experience that can only come with practice.

The balance for weighing the beads must be one of a delicate kind; the beads being almost microscopic in size, an ordinary chemical balance is scarcely suitable. The crucibles of the Morgan Crucible Company, of Battersea, may be employed, but the cheaper Cornish pots are also very largely used.

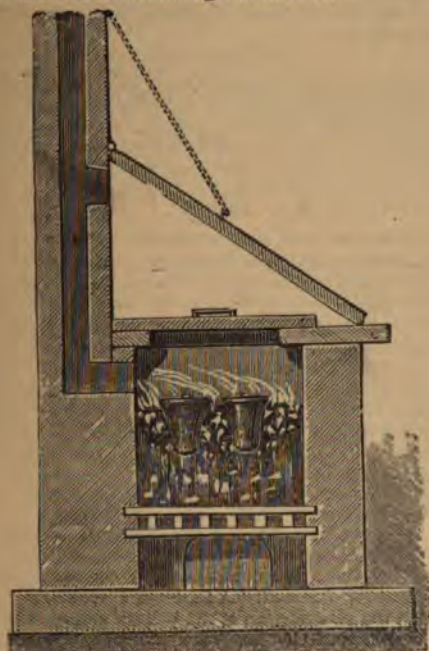
As already mentioned, about three washings of the calcined ore are reserved for the silver extraction, and as iodide of potassium is an expensive reagent, it must be intelligently employed, no more being used than is consistent with theory. In order to gauge this quantity, a litre of the liquor is taken, and 10 c.c. of a 10 per cent. solution of iodide of potassium added, which will cause a precipitate of iodide of silver to fall. The quantity, however being small; in order to facilitate its collection, 20 c.c. of a 10 per cent. solution of acetate of lead is also added, and the whole allowed a period to settle. It is then filtered and washed, and the precipitate dried. It is now ready for fusion, to a button of argentiferous lead.

To this end, the dry precipitate is mixed with 50 grammes of the following flux:—

Soda Ash	350 grammes
Red Lead	250 "
Borax	200 "
Charcoal	15 "

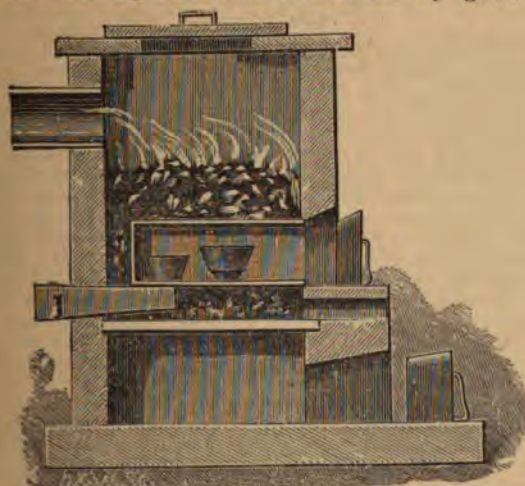
the mixture is placed in a crucible and exposed to the full heat of the wind furnace, the melt being stirred with a light iron rod or large iron nail, which is left in the crucible during the fusion. When thoroughly fused, the melt may be poured into an ingot mould, or what is perhaps better, allowed to cool, and the crucible broken to obtain the button of argentiferous lead, which after cleaning is ready for cupellation.

The cupels should be of a sufficiently porous texture to allow the fused oxides to be absorbed easily, and at the same time must be solid enough to be handled without danger of fracture.



WIND FURNACE.

The furnace being heated, the cupel is placed within the muffle, and when hot enough (reddish white) the button of argentiferous lead is introduced by means of a suitable pair of tongs. The furnace is then closed so that the fused metal may reach the temperature of the muffle; air is then allowed access, whereupon the lead is oxidised and the fused litharge is rapidly absorbed by the cupel. As the operation proceeds the button diminishes in size until all the lead has been oxidised, when the remaining bead of silver seems suddenly agitated by a



MUFFLE FURNACE.

gyratory motion, which as suddenly ceases, a flash of light prevailing the whole surface and announcing the conclusion of the cupellation. When this brightening has taken place, the cupel is drawn to the mouth of the muffle so that the cooling may be gradual.

The regulation of the temperature and of the current of air through the muffle are matters of no small moment. As silver is, to a certain extent, volatile at high temperatures, there is a heat which should not be exceeded, though a high temperature generally succeeds better than

one which is low. The best heat is a whitish one, at which the fused button and the fume from it is scarcely discernible; the temperature is certainly not strong enough when the fume is heavy or when the oxide of lead is not liquid enough to be absorbed and forms a deposit around the bead, which ought to be well rounded, white, clear and crystalline below, and capable of being readily detached from the cupel.

The button of silver is detached from the cupel when cool, examined with a magnifier, any foreign particles detached, and finally weighed on the assay balance, its weight giving the silver contents per litre, which multiplied by 4.543 expresses the same per gallon, the amount being usually reckoned in grains.

The amount of iodide of potassium necessary for the precipitation is obtained from the weight of the silver by multiplying by 1.6, the following instance serving to render matters clear:—

The bead resulting from a litre of the liquor weighed 1.299 grain, which number multiplied by 4.543 produces 5.9 grains per gallon of silver. The silver contents per gallon, multiplied by 1.6, that is $5.9 \times 1.6 = 9.44$ grains of iodide of potassium per gallon. Supposing now that 1,748 gallons be the capacity of the measuring tank, we shall require $\frac{1,748 \times 9.44}{437.5} = 37.7$ ounces of iodide.

The following table shows some of the details of working:—

No.	Grains Silver per gal.	Total Silver.	Iodide added, oz.	Waste Silver. Grains per gal.	Per cent. Precipitated.
1	5.9	10,313	37	0.5	91
2	5.2	9,089	36	0.4	92
3	6.2	10,930	38	0.6	90
4	6.2	10,930	39	0.4	93
5	5.7	9,963	35	0.8	86
6	5.4	8,940	32	0.5	90

Roughly, the precipitate of silver iodide contains 10.0% of silver. As already described, this is reduced with zinc, and the iodide of zinc used in subsequent operations.

(To be continued.)

IMPORTS AND EXPORTS FOR OCTOBER.

TAKING into consideration the continuation of the coal strike, the Board of Trade returns for October are not altogether unsatisfactory. The imports of oils and chemicals show an increase. In the exports both alkali and bleaching materials are much smaller than they were for the same month last year. In the former the decrease amounts to 244,262 cwt.

IMPORTS OF FOREIGN AND COLONIAL PRODUCE.

		Quantities.	
		1892.	1893.
Margarine	Cwt.	119,950	116,049
Copper ore and regulus	Tons.	16,922	22,250
Hides—dry and wet	Cwt.	69,410	110,845
Nitrate of soda	Tons.	6,957	3,639
Tallow and stearine	Cwt.	97,024	167,047
Tin	Cwt.	46,162	65,070

EXPORTS OF BRITISH AND IRISH MANUFACTURES.

		Quantities.	
		1892.	1893.
Alkali	Cwt.	640,884	396,622
Cement	Tons.	43,544	40,485
Coal and Coke	Tons.	2,894,283	2,443,763
Copper—all kinds	Cwt.	131,205	85,093
Iron and steel	Tons.	256,507	243,717
Chemical manures	Tons.	24,483	21,881
Oils—seed	Tons.	6,043	4,476
Salt	Tons.	47,591	51,350

Laboratory Notes.

ANALYTICAL, PHYSICAL, AND TECHNICAL.

HANDY TEST FOR IRON IN COPPER SULPHATE.

IN the manufacture of copper sulphate, which is used so extensively for spraying purposes in agriculture, the process of manufacturing which is described in the *Journal* (No. 289, p. 353), it is often necessary to quickly test for the presence of iron salts. The following test will be found useful for such purposes on account of its simplicity and the distinctiveness of the reaction. Five c.c. of an aqueous solution of the copper sulphate to be examined, made by dissolving one part of CuSO_4 in five of water, is placed in a test tube with 5 c.c. of an ethereal solution (1 in 10) of salicylic acid. If the copper sulphate is pure, there will be no change in the colour of either of the solutions. But if the salt is contaminated with sulphate of iron, a beautiful violet colour will make its appearance, varying in intensity according to the amount of impurity present. Such a test does not require very costly reagents, and is sufficiently simple to be placed in the hands of an intelligent foreman.

ANALYSING SODIUM NITRATE IN GERMANY.

For long enough, both here and on the Continent, it has been the custom to analyse nitrate of soda by estimating the refraction, and taking the percentage of nitrate of soda by difference. Owing to this method having in some cases worked against the interests of buyers, the Associated Chemists to the German Agricultural Stations have, upon the proposition of Mons. Maercker, unanimously decided to reject the old method and adopt G. Kühn's process for the direct estimation of the nitrogen in the nitrate. This process will be obligatory for all members of the Association.

PREPARATION OF HYDROGEN.

The proposal recently made to use a few drops of a solution of cobalt nitrate, with a view to accelerate the evolution of hydrogen gas in its preparation from zinc and dilute sulphuric acid, is anything but new; but it is a useful incidental point, which is often forgotten by those engaged in laboratory practice. Cheaper salts, such as copper sulphate, have been used with success. The use of nitrate of copper or cobalt should, however, prove useful in the testing of vitriol for arsenic, where strongish acid and pure zinc have to be employed, and some difficulty is at times experienced in promoting the action of the acid on the zinc.

DETECTING MINERAL ACIDS IN VINEGAR.

The following is a neat test for the presence of mineral acids in vinegar, or acetic acid. About 1 c.c. of the vinegar to be tested is placed in a small porcelain basin, and to this one drop of an alcoholic solution of rosanilinechlor-hydrate (made by dissolving 25 grains of fuchsine in 100 c.c. of 90 per cent. alcohol) is added. If the vinegar is pure, on mixing the two, the red-violet colour of the fuchsine is not changed, but if anything gains in intensity. The presence of mineral acids, on the contrary, even in the presence of so small a quantity as 1 per cent., destroys the red colour, the mixture presenting a dirty yellow appearance. The characteristic colour of the fuchsine, however, can be restored on neutralizing the mineral acid with alkali.

THERMOMETER LIQUIDS.

Sulphuric acid of high strength possesses considerable advantages over mercury and alcohol as fluids for thermometers, inasmuch as it only freezes at 112°C , or 72° below the freezing point of mercury, while unlike alcohol, strong sulphuric acid does not readily give off vapours until very high temperatures are reached. Its use is coming into vogue to a considerable extent.

THE STANDARD LIGHT: PURE AMYL ACETATE.

The German Gas Association has made arrangements for supplying pure standard amyl acetate for the Hefner standard photometric lamp. The acetate can be had in litre flasks (1.76 pints) from the office of the Association (Karlsruhe i/B). For the last four years the Imperial Standards Verification Laboratory at Charlottenburg, have been working with the Hefner-Altenneck amyl acetate lamps, and have got more uniform results from them than any other standard source of light. The average of all the recent determinations is that the German standard paraffin candle is equal to 1.2 Hefner when its flame is 1.8-inch high, and that the English standard spermaceti candle, with the same height of flame, is equal to 1.14 Hefner.

ESTIMATING SILICON IN PIG IRON.

A recent process, which is said to have given satisfactorily concordant results for the determination of silicon in pigs, consists in first dissolving 5 grams of the finely divided sample in 25 to 30 c.c. of 30°Tw . HCl (1.15 sp. gr.) at a gentle heat. When dissolved, dilute to between

150 and 200 c.c. and filter. Wash the residue with hot water first; next with dilute HCl (1:2), and then with hot water again. Dry the filter and residue, and heat in a platinum crucible till the paper chars. Add nitrate of potash, and ignite over the blow-pipe until the carbon has been burnt off. 30 grams of perfectly soluble and pure AmCl are now dissolved in 75 c.c. of hot distilled water in a large porcelain basin, in which the crucible, crucible lid, and contents are placed, and the whole boiled for a while to decompose the silicate of potash. The silicic acid, which separates in the hydrated form, is collected on a filter washed with dilute AmCl , and lastly with water, dried, ignited, and the SiO_2 weighed.

CHONDROSTIBIAN.

This is the name of a new mineral found in a crystalline mixture of calcite, dolomite, and tephroite. It is transparent, and of a yellowish red colour. It is slightly magnetic, and gives on heating in a bulb-tube much water, melting with great difficulty to a black spheroidal mass, giving antimony fumes and a slight smell of arsenic. An analysis of the purified mineral gave: Sb_2O_3 30.66%, As_2O_3 2.10%, Mn_2O_3 33.13%, Fe_2O_3 15.10%, H_2O 19.01%.

DETERMINING THE DENSITIES OF FURNACE GASES.

An ingenious little apparatus, devised by Mons. Meslans, for determining the densities of gases is thus described in the *Comptes Rendus*:—"It consists of two hollow spheres hung to the arms of a balance. Each sphere, which is made of glass, aluminium, or gilt copper, hangs in a separate compartment, the suspending thread being introduced through a hole in the lid. The compartments are enclosed in a box and surrounded by water in order to keep them at equal temperatures. They are at first filled with air to determine the position of equilibrium. The gas, the density of which is to be determined, is then introduced through a long tube immersed in the water, and enters one of the compartments, having previously been dried. The gas is passed through in a slow and continuous stream, and if its density differs from that of air, the equilibrium of the balance is disturbed. The weight necessary to re-establish equilibrium is noted, and density calculated according to a simple formula. Thus the density is found by a single weighing, and by keeping the current of gas continuous any variation in its density is easily observed. A fairly high accuracy is attainable, depending upon the sensitiveness of the balance and upon the perfection of gauge of the spheres. One important application of the apparatus is that for determining the density and composition of the products of combustion in furnaces. The scale of the balance is graduated so as to show at a glance the percentage of carbonic acid gas, and hence the degree of efficiency of the furnace in question. This percentage, which is 21 theoretically, never exceeds 18 in practice, except in gas generators. In a great number of works it varies between 6 and 8. M. Meslans' apparatus is being applied to the study of the various methods of heating. Another application is that by which the presence and percentage of marsh gas is indicated. With spheres of one litre capacity, and a balance sensitive down to half a milligramme, it was found possible to detect 0.1 per cent. of methane in the air of a mine.

CLAY FILTERS.

A description of clay filters made by the Royal Porcelain Manufactory, Berlin, has been given in the *Journal of the Chemical Society*. They are made of unglazed hard-baked clay, so hard that steel will not scratch them, endure a pressure of several atmospheres without breaking, and are attacked only—and then but to a very slight extent—by hot concentrated sulphuric acid or caustic soda. They are made in the shape of a flask with flattened bottom, of capacity 50 c.c., 135 c.c., and 1,000 c.c. in the respective sizes, or as cylinders 19 cm. long of 50 c.c. capacity. These filter at the rate of, roughly, 4,900 c.c., 8,600 c.c., 29,600 c.c., and 5,950 c.c. of pure water per hour respectively, with a difference of pressure of 700–720 mm. The rate is not much less when a turbid mixture is filtered instead of pure water. The filtration is very perfect. From water containing barium sulphate precipitated in the cold, or stannous sulphide, perfectly clear filtrates were obtained, and the complete washing of the precipitate was effected in from three-fifths to two-fifths of the time required with a folded filter. From milk and starch solution perfectly clear filtrates were also obtained, but these became somewhat turbid on standing. The filter is usually immersed in the liquid to be filtered, and connected, several at once if required, with a large exhaustion vessel, into which put clear filtrate is run. This vessel is exhausted by means of a water pump and then left to itself. A great saving of the water used by the pump is thus effected, as compared with the ordinary method of filter pump filtration. The filters may be cleaned for further use by rubbing with sand, or, if this is not successful, by dipping in strong acids. If they have been used for filtering oil, for which they are also adapted, they may be cleaned by ignition in a muffle.

EXPLOSION AT A POWDER MILL.—A powder mill at Muiden, near Amsterdam, blew up on Tuesday. Two dead bodies are reported to have been extricated from the debris, while several persons are missing.

Legal Intelligence.

SUPREME COURT OF JUDICATURE.

COURT OF APPEAL.

(Before Lord Esher, Lords Justices Lopes and Kay)

WILLIAMS V. EADY.

This case, which was heard last week, was an appeal against the decision given in the Queen's Bench Division, in a novel action by a boy against a schoolmaster for injury, alleged to have been caused by negligence in leaving a bottle of phosphorus about. The particulars of the case were set forth in this *Journal* (No 325, p. 99), the learned judge at the time directing the jury that if a man keeps dangerous things he must keep them safely, and must take such precautions as a prudent man would take, and to leave such things about in the way of boys would not be reasonable care; and, even taking the defendant's account that the bottle was kept locked up, the key was in the kitchen, and it was a pity such things were kept at all, &c. The jury found for plaintiff, damages £75.

Mr. Avory, for the defendant, now moved to set aside the verdict on the ground that there was no evidence of negligence of the defendant, and, if there was, it was not the proximate cause of the accident. [Lord Justice Kay: Was it not evidence of negligence to have left the bottle of phosphorus lying about in a place to which boys had access, knowing what boys are?] That was disputed. The defendant's evidence was that he kept it locked up. [Lord Justice Kay: Might not the jury take their own view of the evidence?] The evidence showed that the alleged negligence of the defendant could not have been the proximate cause of the accident. The boy had put a lighted match in the bottle and had held it in his hand for some time, and so raised the temperature of the phosphorus. [Lord Esher observed that it was singular that the learned judge had not noticed the putting in the lighted match. Lord Justice Kay said it could not have remained alight when the bottle was closed, especially as there was water in it.] It would have raised the temperature of the phosphorus and, if so, it was the immediate cause of the accident. The real question was not left to the jury.

Mr. Kemp appeared for the plaintiff, and urged that the defendant's leaving the bottle about was negligence. [Lord Esher: If he left it about; but he swore he kept it locked up, and that question was not left to the jury, nor whether the accident had arisen from the defendant's negligence, and the lighted match was never mentioned. Lord Justice Lopes: And the learned judge seemed to think that, even assuming that the bottle was kept locked up, it was neglect to keep the key in the kitchen, and he did not put it to the jury whether it was kept there or was left lying about.] In effect it was so left, and in "*Dixon v. Bell*" (5 "*Maule and Selwyn's Reports*") it was held to be negligence to leave a loaded gun lying about where a child could take it up. [Lord Esher: That case is only in point if the bottle here was left lying about.] The learned judge left it to the jury whether the defendant had taken reasonable care. [Lord Esher: That was too general; not leaving it to them whether the defendant had kept the bottle locked up.] That was involved in the question, and the learned judge remarked on the key being in the kitchen. [Lord Esher: Can you say that was negligence? The boy had no right to be in the kitchen.] There was no evidence that they were kept out. [Lord Justice Lopes: It may be judicially assumed that they were; it would be dangerous to allow them there. (A laugh.)] The bottle could not have been kept locked up, for, in fact, the boys found it in the conservatory. [Lord Esher: But it does not appear that it was there through any fault or neglect of the defendant.] There was, after all, no proof that the bottle was locked up at the time in question—in April, 1892. [Lord Justice Lopes: That may be so; but then it ought to have been left to the jury, and it was not.] The verdict must have gone on that ground, and there was evidence to support it. The defendant had not seen it for some months; it is probable that it had been taken out to apply to the hockey balls, and then left lying about. [Lord Justice Lopes: And it would be improbable that a boy who would not know where it was should get hold of the key and take it out.] Just so; there is an enormous improbability in that view, whereas the other view is extremely probable, and the fact is proved that the bottle had been for some time in the conservatory. [Lord Justice Kay: The jury may have come to the conclusion that the bottle was kept locked up.] Quite so. [Lord Esher: Assuming that the bottle was locked up, was there evidence of negligence?] Certainly. [Lord Justice Lopes: If the evidence had been that it was kept locked up, probably not, but there was a hiatus of some months, during which it is not proved that the bottle was locked up.] Precisely; that is the defect in the defendant's case. It is not fully made out. And that was the view on which the learned judge left the case to the jury as he did—that is, even assuming that the bottle was ever locked up still was there negligence. That was not a wrong way of putting the question to the jury taking the whole case.

Mr. Avory, in reply, urged that the fact that the boys found the bottle in the conservatory did not show any negligence on the defendant. Besides, the boy might have got the key and gone down to the cupboard and taken out the bottle. [Lord Esher: You did not cross-examine him as to that. And how came a boy to go down to that cupboard and take out that particular bottle? How would he know it was there?] It is impossible to answer that. [Lord Esher: Might not the jury, on the whole, doubt whether the bottle was locked up? Why should he have gone to that cupboard? It was not as if it were the larder.] (A laugh.) The true question was not left to the jury. [Lord Esher: Even so; yet if there is evidence that the bottle was left about would not another jury find for the plaintiff?] Not necessarily; they might find that the bottle was kept locked up. [Lord Esher: Is it likely that they would so find? Would even Mr. Murphy be able to persuade them to do so?] The question was not properly left to the jury. [Lord Justice Lopes: You must take the summing up as a whole. It explained to the jury admirably the duty of any one who has dangerous things in his possession, and the obligation to use due care, and left it to them whether the defendant had used such care.]

Their Lordships came to the conclusion that there was no ground for disturbing the verdict, and the appeal was accordingly dismissed.

HIGH COURT OF JUSTICE.

QUEEN'S BENCH DIVISION.

(Before Mr. Justice Wright and Mr. Justice Kennedy).

MORRIS V. ASKEW.

This was a special case stated by justices in petty sessions at Wolverhampton, and raised a question as to the notice put up in a public-house that the spirits sold were diluted.

On April 17, 1893, Mr. H. Toy, on behalf of Morris, purchased from the defendant, a licensed victualler, half a pint of rum, for which he paid 1s. No label of any kind was placed on the bottle, but there was a notice up in a conspicuous place in the room where the rum was sold in the following words:—"Notice.—All spirits sold at this establishment are diluted in accordance with the new Excise regulations." An analysis showed that the rum was 19 per cent. too dilute according to the limit allowed by the Act 42 and 43 Vict., c. 30, section 6. There are no new Excise regulations to which the notice could refer. It was contended that the notice was equivalent to a notice to the purchaser that the rum was diluted below 25 per cent. under proof, and if that had not been the case no notice would have been required at all. It was also contended that in consequence of the notice the sale was not "to the prejudice of the purchaser." It was contended for the appellant that the notice was misleading, and not sufficient, and if it was, it only covered the 25 per cent. allowed by section 6 of 42 and 43 Vict., c. 30. The justices thought the notice was sufficient, and dismissed the summons.

Mr. H. Avory, being called upon by the court, cited "*Sandys v. Small*," where the notice put up was:—"Notice.—All spirits sold here are mixed—38 and 39 Vict., c. 63, sections 8 and 9." This was held to be sufficient notice to purchasers. Here the notice meant that all spirits were diluted, and that the notice was given of that fact as required by law. The justices had found as a fact that the notice was a notice to the purchaser that the spirits were adulterated beyond the 25%.

The Court ultimately referred the case back to the justices, intimating that the notice alone was not a protection to the seller. It was for the justices to find whether, under the circumstances, the sale was "to the prejudice of the purchaser" or not.

(Before Mr. Justice Wills and Mr. Justice Wright.)

ELDER V. SMITHSON.

This case raised a question under the Adulteration Act. The prosecution was under section 6 for selling an article as "lard" not of the nature, substance, and quality demanded by the purchaser. The defence set up was under section 25—"that if the defendant shows to the satisfaction of the justices that he had purchased a commodity of the same nature and quality as ordered, with a written warranty to that effect, he shall be discharged." The justices in this case found that the defendant proved to their satisfaction that he had purchased the lard in question of Wilson Brothers, wholesale provision merchants, at Sunderland, in a bladder, on which was printed the words "Pure star brand," and on this the magistrates dismissed the charge. The complainant appealed.

Mr. Simey argued on his behalf that this was not a "warranty in writing" within the exception in the enactment. Who warranted? What was warranted? What was the substance warranted to be?

The Court were quite clear that there was no "warranty in writing" within the enactment, as there was no warranty what the article was. There was no warranty that it was lard. It might be anything. But the warranty ought to be that the article sold was the same in nature, substance, and quality as that asked for by the purchaser.

Appeal allowed, and case remitted to the magistrates with an intimation that they ought to convict.

Paper Makers' Column.

CLEANING PAPER MACHINE WIRES WHILE AT WORK.

UNDER the above title an article appeared in a recent issue of the *Papier Zeitung*, by an English paper maker, which is of importance to manufacturers. While in the manufacture of paper from rags the wire cloth remains clean and free from specks for a month or so, in the preparation of paper from cellulose and mechanical wood pulp it is very soon covered with hundreds of particles of dirt, varying in size, which it is seldom impossible to again wholly remove. These specks of dirt on the wire produce thin places, or transparent spots, in the web of paper. When such papers are used for printing, and especially printing from reels, the thin places are apt to cause the web to tear across, particularly if they occur on the edges. These fractures of the web are usually the cause of many complaints.

The writer of the article does not deal with single cylinder or "Yankee" machines, as these must be dealt with in a different manner, in order to prepare paper without thin places. He discusses how the wire cloth of an ordinary Fourdrinier machine can and should be kept clean. The resinous-like flakes which are held fast in the meshes of the wire are no other than the sap and resin derived from the wood, which are united by the chemical treatment and are not decomposed by chemical change. With ground wood pulp it is the same, the resinous particles settle upon the wire cloth, and cause defective marks to appear on the paper. When the pulp reaches the wire cloth, and the water flows off, these particles of resin fill up the meshes of the wire, adhering so fast to it that nothing hitherto has been found to remove them perfectly. Piercing with a needle or washing the wire with caustic soda lye or hydrochloric acid, etc., does not accomplish the desired end. Many manufacturers have to renew the wires frequently, because these flakes of resin become too numerous.

The only means which up till now has been tried with anything like success is concentrated sulphuric acid (oil of vitriol). The strongest acid is used. A small quantity of the acid of a strength equal to 60° or 66° Baumé is placed in a glass dish and applied by means of a rubber stick to the dirty spot or speck on the wire. The acid can be applied from underneath, and while the paper is being made on the machine; for it is possible to see the exact place on the wire where these resinous particles are located. When the acid touches the resinous particle on the wire, heat is generated, the resin is "burnt" or shrivelled up, and afterwards can easily be removed by washing. When the place has passed the couch roll, it will be found to be clean, the particles of dirt having been washed away. More acid may be applied if found to be necessary, but not too much, as it is well known that sulphuric acid acts deleteriously upon the felt and couch roll cover. With a good water spray under the machine, and provided too much acid is not used, this method of keeping the wire clean may be used with advantage. Whilst changing a felt, the wire may be cleaned by washing with the acid whilst it is standing, care being taken that the acid touches no other parts of the machine.

BROWN WOOD PULP.

Brown paper made almost exclusively from wood constitutes an important branch of the paper trade in Germany and Scandinavia. Fry, it appears, was the first to attempt the manufacture of brown paper pulp from wood by simply subjecting it to the action of steam at a high temperature. For this purpose the wood chips were placed in large boilers, and heated with high pressure steam for several hours; the temperature required being about 332° Fahrenheit, corresponding to a pressure of 90 lbs. per square inch above the atmosphere. The action of the steam upon the incrusting substances surrounding the fibre of the wood, was not found to be very vigorous. Very little of these substances are, in fact, rendered soluble, but some of them are transformed into useful organic acids (acetic, etc.), which, however, re-act on the shell of the boiler, causing inordinate wear and tear. In order to obviate this corrosive action of the acids, attempts have been made with greater or less success to steam the wood in the presence of an alkaline body such as lime, which combines with the organic acids forming compounds that exert no corrosive action on the boiler plate. When this system is carried out it is obvious that the acids or their compounds are lost; because the wood is steamed in revolving boilers and the insoluble lime salts are intimately mixed with the resulting pulp.

For many years past boilers constructed of wrought iron or steel plate, and covered inside with a coating of thin sheet copper, have been used for the purpose of preparing brown wood pulp. The inside coating of copper forms an acid resisting lining, upon which the organic acids formed during the steaming process have practically no solvent action. These boilers are of considerable size, being, as a general rule, about 15 feet long by 6 feet in diameter, their total cubic

capacity being about 425 cubic feet. As there is no necessity for them to revolve, they are of the horizontal stationary type.

As the wood is ground after being steamed in these boilers, it must, accordingly, be put into them in pieces to suit the grinding machines. This is done by two workmen, one of whom packs the pieces of wood in layers within the boiler, while the other passes them to him through one of the two manholes placed at each end. Steam of about six atmospheres (90 lbs.) is then admitted through a suitable valve, and the pressure, which is recorded by a steam gauge, maintained for 8 or 18 hours as the necessities of the case may be, or until the wood has been rendered soft and of a dark brown colour. The water condensed inside the boiler is allowed to flow away through a tap fixed at the bottom. The acid and oil products distilled from the wood are contained in this condensed water, and are usually collected together in a reservoir. The oil of turpentine, as it is commonly called, floats on the surface, and is separated from the water beneath by means of a ladle. It is very inflammable, and, because of its value, is sold.

When the wood has been sufficiently steamed, the pressure is blown off, and the boiler filled and emptied three times with cold water, the object in view being twofold, viz.:—First, to cool the wood so that the workmen can easily remove it; and second, to wash it free from impurities, thus making it more suitable for the grinding machines. The boiler is then emptied by manual labour, the pieces being passed out through the manholes.

The acid resisting lining consists of sheets of copper $\frac{1}{8}$ of an inch to a $\frac{1}{4}$ in thickness. These are carefully laid flat over the iron surface and rivetted to it with small copper rivets. The manholes are strengthened with an iron ring, and are also carefully covered with sheet copper. The edges of the copper sheets are lapped and soldered. In each ring of plates forming the boiler small holes are bored, which pierce the iron shell but not the copper lining. The outer part of these holes is threaded so that a small pipe or cock may be attached to the boiler. These taps are used for ascertaining whether the copper lining is tight. A little water is forced by means of a small pump into the space between the boiler shell and the copper lining, so that the workman can localise any leak by carefully examining the inside. If at any time a leak in the lining occurs, the steam or water is observed to issue from these taps, in which case the lining is at once repaired.

EXPORTS OF PETROLEUM FROM U.S.A.

THE Chief of the Bureau of Statistics, Mr. S. G. Brock, gives the exports of petroleum and petroleum products from the United States for the month of Aug., 1893, and during the eight months ending Aug. 31st, 1893, as follows:—The total value of the shipments for Aug. was £816,851., as against £741,494. in Aug., 1892; and for the eight months ending Aug. 31st, 1893, £5,419,892., as opposed to £5,369,517. for same period ending Aug. 31st, 1892. The shipments were as follows:—

CRUDE PETROLEUM.				Gallons.
Total for August, 1893	..	..	..	13,462,874
" " " 1892	..	..	..	13,644,167
Total for eight months ending August 31st, 1893	..	..	..	75,497,831
" " " " 1892	..	..	..	62,898,299
NAPHTHAS.				
Total for August, 1893	..	..	..	1,703,866
" " " 1892	..	..	..	1,098,887
Total for eight months ending August 31st, 1893	..	..	..	8,731,227
" " " " 1892	..	..	..	7,155,336
ILLUMINATING.				
Total for August, 1893	..	..	..	73,082,164
" " " 1892	..	..	..	51,143,549
Total for eight months ending August 31st, 1893	..	..	..	456,866,962
" " " " 1892	..	..	..	366,354,028
LUBRICATING.				
Total for August, 1893	..	..	..	3,894,004
" " " 1892	..	..	..	2,851,676
Total for eight months ending August 31st, 1893	..	..	..	21,239,528
" " " " 1892	..	..	..	22,292,733
RESIDUUM.				
Total for August, 1893	..	..	..	28,266
" " " 1892	..	..	..	1,008
Total for eight months ending August 31st, 1893	..	..	..	442,806
" " " " 1892	..	..	..	236,334

BEAN OIL.—More oil is extracted from the bean than from any one of the other oil-yielding plants of China. The two kinds of bean treated for oil are small in size and oval in shape, one having a whitish yellow epidermis and interior, the other being green throughout. The beans yield about 10 per cent. weight of oil, which is used both for cooking and lighting purposes.

Reports of Companies.

THE PRIMITIVA NITRATE CO., LIMITED.

COLONEL NORTH ON THE "COMBINE."

The seventh annual general meeting of this company was held on Friday last week, at Liverpool, Colonel J. T. North presiding. The report and balance-sheet for the year ending 30th June, 1893, showed a balance on the profit and loss account of £28,716. 1s. 10d., and after carrying £3,263. 2s. 2d. to depreciation and adding a balance of £2,780. 10s. 2d. from previous account there remained a total of £28,233. 9s. 10d. The directors placed £10,000. to the reserve fund, and a further £10,000. to depreciation, and carried forward the balance of £8,233. 9s. 10d. to the next account.

The Chairman, in moving the adoption of the report, was sorry to say that they were not in a position to pay a dividend, but in face of the heavy interest they had to pay on advances at the West Coast of South America—a matter of 9 per cent., which was a dividend in itself—they thought it better to keep the money, and to get out of debt entirely. He assured them, however, that they would get a dividend from this date, since everything showed that the company was going along very well. In the three years they had paid in duties no less than £529,830., and had only made £70,594., and as they had been altogether without dividends, it would be seen that they had been running the *officina* for the Government. In his opinion the *officina* was one of the best on the Coast.

A Shareholder asked what effect the breaking up of the nitrate combination would have on the company.

Colonel North.—Not the slightest. We cannot even make the 21 millions which is wanted, and the stoppage of the combination will, therefore, not reduce the prices. In the first place, we are very short of labour, and the price must be raised in spite of the breaking up of the combination, which was only started to get rid of the surplus stocks, and this result has been effected.

In reply to another shareholder, the Chairman said that a lithographed plan of the nitrate grounds had not been prepared owing to the cost, which the directors had ascertained would be very great.

A Shareholder thought that, in view of the history of the company, it would be better if the directors were to credit the stocks at the cost price and let the profit go to the next year's account.

The report and accounts were then agreed to. Mr. R. R. Lockett was re-appointed a director, and Messrs. Harmood Banner and Son were re-appointed auditors. A vote of thanks to the chairman brought the proceedings to a conclusion.

THE LONDON NITRATE CO.

The directors of this company have declared a dividend of 11s. per share on the preference shares, being 8 per cent. arrears due for the year 1891-92, and 3 per cent. on account of 1892-93, payable on the 18th inst.

CHANGE OF ADDRESS.

The Lantaro Nitrate Company, Limited, has removed from 70, Gracechurch-street, E C, to 13, St. Helen's-place, E C.

FIRE AT THE GREENBANK ALKALI WORKS.

ON Monday night last, about ten o'clock, a disastrous fire broke out at the works of the United Alkali Company, Limited, at St. Helens, known as the Greenbank Alkali Works. On information of the outbreak being received at the Fire Brigade Station, Superintendent Rutherford and a body of men quickly turned out with the steam fire engine. The horses were driven at a rapid rate down Hardshaw-street, and on turning the sharp corner into Church-street the engine came to sad grief. The wheels "skidded" on the pavement, and colliding with the kerbstone smashed one of the axle-bars. The firemen were thrown from the machine, and one of them, William Seddon, was found badly injured. He was carried into the Fleece Hotel, close at hand, where it was found that one of his legs was badly smashed. Directly afterwards the hose carriage, drawn by a couple of horses, dashed down the street and collided with the disabled engine. The steam engine was left behind, and after some delay the brigade continued the journey on the hose carriage. On their arrival at the works they found that the flames had got a good hold of the vitriol chambers, a structure measuring some 50 yards in length by about 25 yards in width. The chambers are four in number, placed side by side, and were of lead, surrounded by thick casings of pitch pine. The fire continued to burn till one o'clock a.m., but by then the brigade appeared to have gained the mastery. Three of the chambers were destroyed, but the fourth was well guarded. The water supply was most inadequate, and the force from the main was insufficient to reach the burning chambers, which were 125 feet above the

level of the ground. The steam engine at Messrs. Pilkington's glass-works was brought into requisition, and a good supply of water was pumped to the fire. When the vitriol chamber collapsed, the liquor rushed down the adjoining street, finally escaping into the sewers. It is estimated that nearly 400 tons of liquor ran to waste. The total loss and damage by fire is considerable.

EXPORTS OF ALKALI AND BLEACH.

THE following figures, which are taken from the official foreign and colonial statistics of the United Kingdom, give the amount and value of alkali and bleaching materials shipped to the undermentioned countries during the month of September, 1893, as compared with the same month in 1892:—

ALKALI.				
Port.	1892.	1893.	1892.	1893.
	Cwts.	Cwts.	£	£
Russia	37,112	35,972	16,794	12,296
Sweden and Norway	7,795	19,854	2,295	5,029
Germany	10,787	11,505	4,295	4,850
Holland	4,571	8,358	1,463	1,768
France	2,662	4,803	1,146	1,718
Spain and Canaries	21,327	21,199	10,592	9,517
Italy	14,585	14,167	6,508	5,626
United States	333,522	125,598	109,379	36,512
Australasia	9,511	13,920	3,413	5,395
British North America ..	20,748	25,794	6,186	8,136
Other countries	56,478	69,573	22,673	23,756
Total	519,098	350,743	184,744	114,603

BLEACHING POWDER, ETC.				
Port.	1892.	1893.	1892.	1893.
	Cwts.	Cwts.	£	£
United States	71,220	23,450	29,682	10,031
Other countries	70,074	48,797	27,736	19,881
Total	141,294	72,247	57,418	29,912

THE GAS SUPPLY OF LONDON.

THE quality of the gas supplied to the City of London for the week ending November 4th, 1893, was good. According to the report of Mr. W. J. Dibdin, chemist and superintendent gas examiner to the London County Council, the tests made at the various testing stations showed no deficiencies in illuminating power. The following figures have been prepared from the report, and show the average composition of the gas calculated on the mean test:—

Company.	No. of districts tested.	Illuminating power (in stand. sperm candles). Mean average.	Sulphur. Grains in 100 cu. ft. Mean average.	Ammonia. Grains in 100 cu. ft. Mean average.	Sulphuretted hydrogen.
Gas Light and Coke Co.	12	16'42	10'12	0'26	Nil.
South Metropolitan Gas Co.	6	16'50	12'90	0'40	Nil.
Commercial Gas Co. ..	2	16'20	7'50	0'55	Nil.

The standard gas supplied by these companies should have an illuminating power of 16 sperm candles, and contain not more than 22 grains of sulphur and 4 grains of ammonia per 100 cub. ft. of gas, on an average of three days, with a pressure of one inch between sunset and midnight, and six-tenths of an inch between midnight and sunset.

CAMEL HAIR BELTING.—We are pleased to learn that the John Scott legacy medal and premium has been awarded to Mr. Frank Reddaway, of Manchester, by the Science and Arts Committee of the Franklin Institute, Pa, U.S.A., for his camel hair belting.

CHEAP INCANDESCENT LAMPS.—Since electric lighting seems likely to catch on in Manchester and other towns where electric installations are being put in, it will doubtless be interesting to intending users to know where they can most cheaply purchase Edison Swan Incandescent Lamps. Prior to the expiration of the Edison Swan patents recently, these lamps sold at two shillings and sixpence each. Since the expiration of the patents they have been obtainable at one shilling and five-pence, and again at one shilling and threepence each. They are now, however, to be had in lots of from fifty and upwards for the nominal sum of one shilling each, from S. Senator, 3a, Wilhelm-strasse, Berlin, S.W., who undertakes to deliver the same free at the price.

Correspondence.

* * We do not hold ourselves responsible for the opinions expressed by our correspondents.

ANSWERS TO CORRESPONDENTS.

- T. C. G.—The patent is the joint property of the two following:—A. H. Majewski, 34, Putbusstrasse, Berlin, and W. Beyenbach, 73, Brunnenstrasse, Berlin.
S. AND L.—Thanks for the information.
S. S.—We shall be pleased to hear further from you on matters of interest.
A. G. S. W. (BERNBURG).—Thanks for the explanation. It is unfortunate we did not know before.
F. R. AND CO.—Thanks for your kind and prompt attention.
P. AND. B.—They will be forwarded as soon as possible.
R. H. (SMYRNA).—We hope to have some information to give you on the subject before long.

Trade Notes.

SERIOUS EXPLOSION OF ETHER.—According to the *Kleine Journal* a most disastrous accident occurred last week at Brestlitovsk, in the Russian province of Galicia. Owing to the carelessness of the employés, an explosion of ether took place at a chemist's shop, the entire building being blown into the air. Twenty persons were killed and many injured, while the houses in the vicinity were seriously damaged.

PROSECUTION OF THE RADCLIFFE LOCAL BOARD.—Last week at Bury, the Radcliffe Local Board were summoned by the Mersey and Irwell Joint Committee for river pollution. Mr. Wilson prosecuted. Mr. Clayton defended and admitted a technical offence, but pleaded that the Board could not yet carry out a scheme because of the non-settlement of a question as to who should deal with the sewage of Stand-lane. A penalty of 10s. and costs in two cases was imposed, and an order made for treatment within six months.

A BOY'S HEAD BLOWN OFF.—An extraordinary explosion occurred at Bradford last week, by which a boy named John William Fuller had his head completely blown off. He was carrying a cast-iron oxygen cylinder used for magic lantern entertainments up a gangway leading to the Exchange Railway Station, when he dropped it. He was instantly killed and shockingly mutilated. A man who was near was struck by parts of the case, and his hands were injured. All the lights in the neighbourhood were extinguished.

PENNY LECTURES ON CHEMISTRY.—In completing the reference made in these columns recently to the lectures which are being given at University College, Liverpool, by Dr. Charles A. Kohn, we now append the rest of the syllabus up to Christmas. In addition to lectures on vinegar and sugar which have been delivered, on Monday next and the following Mondays lectures will be given on the Coal Tar Products: Pitch, asphalt, lampblack, creosote, timber preserving antipyrine, &c. The Coal Tar Colours: Indigo and the alkaloids, such as quinine, strychnine, cocaine, &c.

WINE (?) A LA PARIS.—Wine is commonly described as the "fermented juice of the grape." Yet it is not always so when we consider how much stuff is sold as wine which is perfectly innocent of any acquaintance with the produce of the vineyard. The Municipal Laboratory of Paris, whose function is to detect adulteration, has caused 15,000 casks of so-called wine to be seized by the authorities. The official analyst could not find in the whole lot a single drop of grape juice; but what he did discover was as follows:—Water, alcohol, glycerine, sulphate of lime, salts of potash, and berries for colouring. Not so bad as it might be, perhaps, and you get plenty for your money. "Wine that maketh glad the heart of man"—forsooth, this sort we should think made the hearts of some men—doctors—very glad indeed.

FOREIGN PARCELS RATES.—Messrs Swan and Leach, Limited, of Manchester, have just issued a new and considerably reduced tariff for foreign parcels. One of the chief reductions is to be found in the new price of 1s. 9d for 11lbs from Manchester to any town in Germany and Austria. They have also compiled a table of goods train rates to the principal towns on the Continent, which will be found to be lower than anything yet quoted. All their express passages to Northern and Central Europe are sent by the Hook of Holland and Clèves; this is the new express route. Some doubt has always existed in the minds of shippers as to the ultimate cost of any package entrusted to this firm, therefore they have published (for the first time in Manchester we believe) the extra charges for which they undertake to deliver sample parcels into consignee's hands, and in the case of Germany and Austria it will be seen that they deliver these parcels without any charge beyond the rate for carriage. Parcels other than samples are assessed by the Custom authorities of the various countries at the frontier, and are charged accordingly. These charges can, if desired, be paid by the firm and re-charged to the sender.

SUFFOCATED IN A TAR TANK.—At the Pye Bridge Chemical Works, near Alfreton, on Monday, three men were suffocated by gas in a tar tank which was being cleared out. Two other men were nearly suffocated.

THE CARRIAGE OF PETROLEUM IN BULK.—The petroleum in bulk ocean-carrying trade is certainly assuming large dimensions, there being at present 47 oil-tank steamers afloat, ranging in size from 666 to 4,134 tons gross, while no less than 17 more are at present being built at European yards.

DUTCH MADDER.—Messrs. Bunge and Co., of Rotterdam, state that the prices of Dutch Madder have gone down considerably, owing to easy terms having been accepted by the farmers who were anxious to sell. Prices vary from 43s. 6d. down to 23s. 6d. per cwt. for fine crop, and downwards to roots respectively.

THE DIVIDENDS OF GERMAN CHEMICAL WORKS.—In a report issued by the German Society for the Protection of the Interests of Chemical Industry some instructive figures are given of the profits distributed by the joint-stock companies which are members of the society during each of the last 11 years. The following table shows the average rate of annual dividend declared by these companies from 1882 to 1892 inclusive:—

	Dividend. Per cent.		Dividend. Per cent.
1882.....	12'82	1888.....	9'78
1883.....	10'02	1889.....	10'58
1884.....	7'26	1890.....	12'81
1885.....	6'37	1891.....	11'29
1886.....	7'17	1892.....	11'92
1887.....	8'29		

The widest differences are shown in the fortunes of the several companies. Last year, for example, of the 89 concerns named in the report, 23 declared no dividend, 11 distributed 5 per cent. or less, 31 upwards of 5 and up to 10 per cent., 11 upwards of 10 and up to 15 per cent., whilst 13 paid over 15 per cent. The results of this year's operations are expected to be much less satisfactory than those of 1892. Several German chemical manufacturers have, however, branch establishments in Russia, and it is understood that these are still yielding good profits.

Market Reports.

WEST OF SCOTLAND CHEMICALS.

GLASGOW, TUESDAY.

At the lowered prices there has been a brisker demand for bleaching powder, and last quotation is well-maintained. Caustic soda is now on report as decidedly firmer, though without any change of value, and this renewed firmness is attributed to the prolonged check upon production in Lancashire. The other ordinary chemicals are quiet and without change.

Last week a sort of "boom" set in on the sulphate of ammonia market, due to causes which operators confess themselves as not very well able to define, or to understand, even. Forward values take the lead, contrary to the custom of late, and January to March has been done at £13. 5s., and January to September at £13. Prompt meanwhile is satisfied with a more moderate recovery, the highest on report to-day being £12. 17s. 6d. Nitrate of soda also is slightly dearer.

In mineral oils and paraffins there is fair general activity, but paraffin spirit is again less called for and cheaper at 4½d. per gallon. Solid paraffins are all firm.

Chief prices current are:—Soda crystals £2. 10s. nett, Tyne; soda ash £3. 17s. 6d. nett, Tyne; white alkali 48/52 £4. 10s. to £5. nett, Tyne; alum in lump £5. nett. Glasgow; caustic soda, white, 74° £11. 10s., 70/72° £10. 15s., 60/62° £9. 15s., and cream 60/62° £9. 10s., all nett, Liverpool; bleaching powder £7. 15s., nett Tyne; saltcake, 22s. 6d.; borax, English refined, £30., and boracic acid, £37. 10s. nett, Glasgow; bicarbonate of soda, 5-cwt. casks, £6. 15s., and 1 cwt. casks £7. less 2½%, Liverpool; bichromate of potash, 4½d. nett, for Scotch and English deliveries (for export, 4½d. nett. f.o.b. Glasgow); bichromate of soda, 3¾d. nett, for Scotch and English deliveries (for export, 3¾d. nett. f.o.b. Glasgow); chlorate of potash, 8d. less 5%, Liverpool; nitrate of soda, 9s. 4½d.; sulphate of ammonia, £12. 17s. 6d. prompt, f.o.b. Leith; salammuniac, first and second white, £37. and £35. less 2½% any port; sulphate of copper, £15. 15s. less 5% Liverpool; paraffin scale, hard and soft, 1½d. per lb.; paraffin wax 120° semi-refined 2¾d.; paraffin spirit (naphtha) 4½d. per gallon; paraffin oil, burning, standard No. 1 grade, 5½d. per gallon at works, for Scotch buyers (English sales ½d. to ¾d. lower); ditto (lubricating) 865° £4. 7s. 6d. to £4. 10s., 885° £4. to £5. 10s., and 890/895° £5. to £6. Week's imports of raw sugar at Greenock were 24,900 bags.

THE METAL MARKETS.

LONDON, WEDNESDAY.—Pig iron quiet. Scotch warrants at 42s. 5d., Middlesbrough 34s. 5½d. cash, and hematite 42s. 5d. Copper, dull: Chili bars, G.O.B.'s and G.M.B.'s closed at 9d. to £42. 11s. 3d. cash, and £42. 13s. 9d. to £43. 1s. 3d. Tin, quiet: Straits closed at £75. 10s. to £76. cash, 5s. to £76. 15s. three months; Australian, £76.; English 80. 10s. Lead, steady: Spanish, £9. 15s. to £9. 16s. 3d.; £9. 17s. 6d. to £10. Silesian spelter: ordinary, £17. 6d. Nickel, 1s. 7½d. Antimony, £37. 10s. Quicksilver: ds. £6. 7s. 6d.; second hands, £6. 7s. Copper shares, 1½ to 1½. Copiapo, 1½ to 1½. Libiola, 2½ to 3½. d Barry, 1½ to 1½. Rio Tinto, 4½ to 4½. Tharsis, 4½

PERHAMPTON, WEDNESDAY.—A more hopeful feeling is to-day, resulting from improved coal trade news. Earnest ones are expressed that the strike is now nearing its end, and iron trade will be allowed to resume its normal condition. A hoop, and bar firms are very busy; the rest quiet. Galvanised 11. to £11. 5s. at Liverpool; best firms, £11. 12s. 6d. ets. £7. 2s. 6d. for doubles, £7. singles. Pigs active; prices Northampton and Derbyshires, 45s. to 46s. here; Staffordshire 36s. Coal strong.

LONDON, WEDNESDAY.—Market steady, with moderate business. One at 42s. 6d. and 42s. 5½d. cash, also at 42s. 7d. one losing with buyers at 42s. 5d. cash, sellers ask 42s. 5½d.ough done at 34s. 5½d. and 34s. 6d. cash, closing with 34s. 5½d. cash, sellers ask 34s. 6d. Cumberland hematite h buyers at 44s. 4½d. cash, sellers ask 44s. 6d. Middlesmatite closes with buyers at 43s. 3d. cash, sellers ask 43s. 4½d.

SCCELLANEOUS CHEMICAL MARKET.

Alkali trade there is no improvement in the situation. The works in Lancashire are now at a complete standstill, and consequently great scarcity of Leblanc soda ash, bleaching and all other products—the prices being, under these circumstances, nominal. Bleaching powder that is still obtainable is at £8. 10s. nett, f.o.r. Lancashire and Cheshire, and £8. Tyne and Glasgow district. Caustic soda also, owing to the scarcity, readily commands the prices which have been ruling weeks past, and with the growing increase of demand from all the present limited production is unable to meet, further in price are probable. To-day's quotations stand as for last: f.o.b. Tyne, 77%, £12.; f.o.b. Liverpool, 74%, £11. 10s.; 15s.; 60%, £9. 15s.; cream, 60%, £9. 10s. per ton, 10-ton upwards. Ammonia alkali, 58%, steady at the advanced high, for the time being, forward business has been checked to it. Soda crystals are without change in price. In salicake business passing, and stocks are heavy. Brown acetate of iron firm at £7. per ton, usual points of delivery—£6. 15s. price c.i.f. Grey acetate of lime scarce at £11. per ton. White sugar of lead very firm at £25. per ton, c.i.f. Acetate here quiet, but price is firm. In caustic and carbonate of ces are well maintained, and there is good demand for these both for near and forward delivery. White powdered arsenic quiet, and price firm at £13. 5s. nett per ton, f.o.r. Garston.

REPORT ON MANURE MATERIAL.

As been more inquiry throughout the week, and a moderate as resulted at some improvement in prices, but scarcity of precluded any heavy transactions. Florida phosphate rock, nds buyers for the Baltic and Mediterranean at 9d. per unit, , c.f. and i., and this price asked for Continental ports, mburg, 1894 shipment. For good ports in the United the value is barely 8½d. There is material alteration in the Peace River and South Carolina River rocks; both descrip- carce for early shipment.

good inquiry for River Plate bones, but very few cargoes le for early shipment. November-December shipments are 12s. 6d. to £4. 13s. 9d., and over £4. 15s. would be paid g aloft and near at hand. Crushed Calcutta bones are 15s., ex quay Liverpool, for shipment. Shippers of crushed e are experiencing so much difficulty in filling outstanding at they refuse to offer quantity in the meantime. Bombay is selling for shipment at £4. 17s. 6d., nothing offering on nding bones are worth £4. 5s. to £4. 10s., ex quay Liver- ding to quality and condition.

Nitrate of soda is quiet in all positions: ordinary quality on spot may be had at 9s. per cwt., and fine at 9s. 1½d., ex store. Due cargoes are worth about 8s. 10½d., and October-November shipments barely 9s. 1½d. For spring delivery sellers offer freely in retail at 9s. 3d. per cwt., and 9s. 1½d. would likely be business for quantity.

There is inquiry for dried blood, but very little offering, and prices required precluded business unless for export. A quantity of River Plate tanking sold at 10s. per unit of ammonia, and 1s. per unit phosphates ex quay Liverpool, and some smaller lots at much higher prices. Nitrogenous material other than nitrate of soda is very scarce, and for some time to come seems likely to be in the main a luxury.

TAR AND AMMONIA PRODUCTS.

Benzol is again dull, but the price does not move much from 1s. 6d. for 90's to 1s. 7d. for 50/90's. Crude naphtha is changing hands at 8½d., being in good demand, and a good demand for solvent naphtha is still apparent. Crude carbolic remains as quoted last week, while anthracene and pitch are also without change.

In the sulphate of ammonia market a further advance has to be recorded, the improvement being evidently more rapid than the speculators anticipated, and shows the value of the exhortations of the executive of the Sulphate of Ammonia Association. The consequence is that all speculative selling business has entirely disappeared, and the operators have become anxious buyers, and in this buying consumers are hastily joining, finding that they have dallied too long. In this way prices have risen to £13., and even to £13. 2s. 6d. at Liverpool for spot parcels, while £13. 10s. is now quoted for Spring delivery. Beckton is £13., London outside makes £13., Leith £13., the price quoted at this last port for January to April being £13. 10s.

LIVERPOOL OIL AND COLOUR MARKET.

WEDNESDAY.

OILS.—Palm oil keeps steady, but quiet. Lagos being about 5s. easier than last week's quotation. Olive is having a fairly good enquiry, and prices are steady. Linseed is much easier, but is rather quiet all the same, Liverpool makes in export casks being quoted 21s. 6d. to 22s. 6d. per cwt. There has not been a great deal doing in cottonseed, as prices are firm at the advance, owing to scarcity, Liverpool refined being worth 22s. 6d. to 23s. 6d. per cwt. Castor oil is unchanged in price and steady, good seconds Calcutta offerings being limited at 2½d. First pressure French continues at 2½d. per lb. Tallow is offering in small quantities, for which good figures are being obtained. Resin, for common at 3s. 9d. to 3s. 10½d., and other grades generally, is steady. Spirits of turpentine are easier again at 22s. 6d. per cwt. Petroleum is unchanged in price and position.

COLOURS are steady without alteration in prices. Ochres: Oxfordshire, common, £10., medium, £12., best, £15.; Derbyshire, common, 40s.; medium, 50s., best, 60s.; Welsh, best, 70s., seconds, 50s., and common, 18s.; Irish, Devonshire, 40s. to 45s.; French, J.C., 55s. to 60s.; M.C., 65s. to 67s. 6d. Umber: Turkish quiet; Devonshire, 50s. to 55s. White lead, red lead, and oxide of zinc unchanged. Venetian red, £6. 10s. to £10. Cobalt: Prepared oxide, 9s. 9d.; black, 9s.; blue, 6s. Zaffres: No. 1, 3s. 6d.; No. 2, 2s. 6d. Oxide of iron: Common, £6.; medium, £10.; finest, £20. Zinc oxide, £23. to £25.

HULL PAINT, OIL, AND COLOUR REPORT.

TUESDAY.

OILS.—The exports are considerably below the same week a year ago, and the trade generally is depressed and much anxiety respecting the strike settlement deters any business of an extensive nature being transacted, most people being satisfied to buy from "hand to mouth." The figures of the exports are:—Linseed oil, 716 cwts, against 522 cwts. a year ago; cottonseed oil, 3,383 cwts, against 10,594 cwts. The import of tallow was 2,940 cwts. Linseed oil is quiet on the spot at 20s. naked, month 19s. 7½d., November-December 19s. 4½d., January-April, 19s. 1½d., and May-August 19s. 4½d. to 19s. 7½d.; casks 17s. 6d. and ordinary barrels 22s. 6d. per ton extra; boiled do and refined £1. to £2. per ton extra. Refined cotton oil firm at 20s. 3d. naked spot, month is quoted at 19s. 9d.; for December-April there are buyers at 19s. and sellers ask 19s. 3d.; crude 18s. 6d. naked spot, December-April offer at 17s. 6d. Refined rape in casks 23s. 6d. First pressure castor oil 2½d. per lb. Coast cod oil £17. 10s. to £19. per ton. Herring oil £16. 10s. Sod oil £15. to £17., and difficult to buy. Resin oil crude £7. per ton. Anti-friction greases from £6. Engine and cylinder oils from 1s. to 2s. per gallon.

CAKES.—The coal strike, which has driven two to three millions of people from beef and mutton to bread, with Black Sea barley at £3. 10s. per ton in enormous quantities, lessens the volume of the

cake trade, notwithstanding the huge deficiency in home grown fodder. Linseed cakes very firm; 95% pure £8. 15s., ordinary £7. 5s. to £7 10s. Russians £8. 10s. Cotton cakes firm; best makes £5. 5s. spot, November-March £5, second quality spot £5., the latter are rising in value in accordance with the supply of Egyptian seed. Rape cakes from £4. 5s. per ton.

PAINTS.—The demand in this trade shows signs of a falling off, as anticipated at this season of the year; the exports both in painters' colours and chemicals show a considerable decrease compared with the same week a year ago. Oxide of zinc £22. 10s. per ton. Oxide of iron dry from £9. to £18. per ton. White and red leads continue cheap and unchanged. Venetian red dry £6. to £10., lime blue 16s. per cwt., ready mixed paints 28s., common black varnish, barrels free, £5. 10s. per ton, oak varnish from 6s. per gallon.

TYNE CHEMICAL REPORT.

TUESDAY.

Chemicals steady, with rather better demand for caustic; 70% is quoted at £10., and 76%/77% at £11. 10s. and £12., the latter strength is scarce at present. Sulphur, £4. 5s. and £4. 7s. 6d. per ton nett. Bleaching powder, £8. per ton.

Bleaching powder, softs, £8. per ton, nett; hards, £8 5s. per ton, nett; caustic soda, 76/77%, £11. 10s. per ton, nett; 70%, £10. per 'on, nett; recovered sulphur, 2 cwt. bags, £4. 7s. 6d. per ton, nett; soda ash, 48%, £3. 15s. per ton, 52%, £4. 2s. 6d. per ton, 56%, £4. 10s. per ton, nett; alkali, 36%, £3. per ton, nett; white alkali, 48%, £4. 10s. per ton, 50%, £4. 15s. per ton, 52%, £5. per ton, nett; hyposulphite of soda, in 5-7 cwt. casks, £7. per ton, ditto, in 1 cwt. kegs, £7. 15s. per ton, nett; silicate of soda, 75° Tw., £2. 15s. per ton, 100° Tw., £3. per ton, 140° Tw., £3. 17s. 6d. per ton, nett; soda crystals, in casks, £2. 10s. per ton gross weight, in 2 cwt. bags, £2. 10s. per ton nett weight; chlorate of potash, 8½d. per lb. less 6%; pearl hardening, £3. per ton, nett; pure white sulphate of alumina, £4. 2s. 6d. per ton, nett; blanc fixe, £7. 10s. per ton, nett; chloride of barium, £7. 10s. per ton, nett; carbonate of alumina, £28. 15s. per ton, nett; aluminate of soda, £33. 15s. per ton, nett; in 5 ton lots, £28. 10s. per ton, nett; hydrate of barium, £10. per ton, nett.

South Durham salt: Steady at 9s. 6d. per ton, with good demand for block.

Coals: The demand continues strong for prompt delivery. All collieries in the two counties (Northumberland and Durham) are now well employed. Best Northumbrian in brisk demand at 18s. to 20s. per ton; second qualities, 16s. 6d. to 18s. per ton.; small steam, 6s. to 6s. 6d. per ton. Bunker coals in good demand, 10s. 6d. to 11s. per ton. Gas coals in heavy demand, 11s. 6d. to 12s. per ton. Coke steady, 15s. 6d. to 16s. per ton. Quotations fluctuate with almost every transaction.

New Companies.

Piggott and Co., Ltd. CAPITAL £10,000, in shares of £1. each. This company has been formed to take over the business of Piggott and Co., London and elsewhere, and to carry on the business of manufacturers of blacking, etc. The subscribers to the memorandum of association are:—W. T. Windsor, 78, Mosley-street, Manchester, merchant; C. T. Windsor, 29, York-place, Oxford-street, Manchester, finisher; W. H. Wagstaff, 2, Grey-street, Higher Openshaw, Manchester, married woman; M. G. Windsor, 29, York-place, Oxford-street, Manchester, married woman; H. Piggott, 36, Milkwood-road, Loughborough Junction, manufacturer; M. Piggott, 36, Milkwood-road, Loughborough Junction, married woman; S. T. Evans, 21, Plassy-road, Catford, Clerk.

Robert Henry Scott, Ltd. CAPITAL £10,000., in shares each. This company has been formed to carry on the bus bleachers, printers, and dyers of cotton and wool, etc. The sub to the memorandum of association are:—R. Scott, Gale House, borough, calico printer; A. Scott, Gale House, Littleborough, woman; T. Rivett, Heaton Norris, cotton manufacturer; Rivett, Lane End Farm, Heaton Chapel, married woman; L. Norfolk House, Heaton Norris, cotton manufacturer; M. Rive folk House, Heaton Norris, married woman; A. E. Ferns, Peter's-gate, Stockport, solicitor.

The Patent List.

This list is compiled from Official sources in the Ma Technical Laboratory, under the immediate supervi George E. Davis and Alfred R. Davis, who report profes upon the value of Chemical Patents.

APPLICATIONS FOR ENGLISH LETTERS PATE

Improvements in the Manufacture of Disinfectants. J. G. T. J. J. Speakman. 20,445. October 30.

Circular Petroleum Burners for Heavy Mineral Oils. 20,488. October 30.

Oil Burning Apparatus. J. Blake. 20,552. October 31.

Oil Injectors. W. P. Thompson. 20,560. October 31.

Spraying Faint, etc., by Compressed Air. D. D. White. October 31.

Obtaining Tannic Extract from Waste Sulphite-Pulp Lyes. 20,575. October 31.

New Colouring Matters. H. E. Newton. 20,579. October 31.

Colouring Matters from a New Amidonaphthol Disulpho Ac F. Newton. 20,580. October 31.

Obtaining Metallic Aluminium and Aluminous Compound Chlorine, Hydrochloric Acid, Carbonate of Soda, and oth Products D. A. Péniaff. 20,604. October 31.

Improvements in the Treatment of Benzine. W. P. Thompson November 1.

Separating Cholestrine from Wool Fats. J. Krause and J. 20,630. November 1.

Feeding Coal Dust to Furnaces. J. M. H. Neubart. 20,665. Nove Aluminium Solder. H. Ramage. 20,690. November 1.

Manufacture of Enamelled Goods. H. Claus. 20,817. November

Preventing Spontaneous Ignition of Liquid Hydrocarbons u Cleansing, etc. M. M. F. Richter. 20,818. November 2.

Limestone and Cement Kilns. J. Foster. 20,842. November 3.

Improvements in Treating Anthracenes, Naphthalenes, and A R. G. Bennett. 20,882. November 3.

Apparatus for the Manufacture of Oil-Gas. Northern Countie oxygen Gas Company, Ltd., and H. S. Rayner. 20,894. November

Recovering Saline and other Substances from Solutions. Huntley and W. H. Hickson. 20,937. November 4.

Manufacture of Lead Chloride and Oxides. T. H. Cobley. 20,976. November 4.

Manufacture of Hydrochloric Acid and an Adhesive White Pr of Mildew, applicable to Fabrics and Paper. T. H. Cobley. November 4.

Manufacture of New Colouring Matters derived from Dioxym methane. J. C. L. Durand, D. E. Huguenin, and A. J. J. d 20,979. November 4.

Gas Washing, Purifying, and Scrubbing Apparatus. S. Chandler. November 4.

Evaporating Apparatus. P. D. De La Grée. 21,000. November 4.

Gazette Notices.

PARTNERSHIPS DISSOLVED.

E. D. HASSELL AND E. AVEY, oil and colour merchants, Seven Sist Hornsey-road N., and Stroud, Green-road, N., under the style of Has and Co.

BANKRUPTCY ACTS, 1883 and 1890.

Receiving Order.

HALLETT, JOSEPH, High-street, Sutton, oil and colour merchant.

IMPORTS OF CHEMICAL PRODUCTS

AT

THE PRINCIPAL PORTS OF THE UNITED KINGDOM.

LONDON.		Acetic Acid—		Antimony—		Barytes—	
Week ending November 4th.		Holland, 173 pkgs.	A & M. Zimmermann	Queensland, 33 t.	Major & Field	Germany, 10 cks.	P.
Acetanillide—		" 25	Beresford & Co.	France, 10 c.	H Johnson & Sons	" 19	T. H. W.
Holland, 7 pkgs.	F. Boehm	Alkali—		Arsenic—		" 83	T. & W.
" 3	T. Palmer	Germany, 393 c.	P. Hecker & Co.	Germany, 10 pkgs.	T. H. Lee	Belgium, 21	J. L. Ly
Acetate of Lime—		" 200	Pillow, Jones & Co.	Asbestos—		" 58	W. Harn
U. States, 435 pkgs.	Johnson & Hooper	France, 220	Arnati & Harrison	France, £18.	Mory & Co.	" 194 brls	O'Han
				Germany, 25	M. D. Co.	" 21 cks.	S. H. W.
						Holland, 27	A Zumba

Holland, 200 pkgs.	Cotton Powder	Co.
Germany, 16 cks.	H. Lambert	
Germany, 42 pkgs.	A. & M. Zimmermann	
Camphor—		
Germany, 200 cs.	R. Warner & Co.,	Ld.
Hong Kong, 54 pkgs.	S. Figgis & Co.	
Caoutchouc—		
France, 40 c.	H. Johnson & Sons	
P. E. Africa, 16	S. Figgis & Co.	
Madagascar, 26		
Zanzibar, 4	Clarke & Smith	
Cartagena, 63	Prop. Bull Wf.	
Belgium, 65	W. Balchin	
Cape, 47	L. & I. D. Jt. Co.	
E. Indies, 201		
Madagascar, 11	Proctor Bros.	
" 300	Hammond & Co.	
Cape, 3	S. Figgis & Co.	
U. States, 27	Prop. Bull Wf.	
Carbonic Acid—		
Holland, 50 pkgs.	G. Rahn & Co.	
Carbonic Acid Gas—		
Holland, 20 pkgs.	Volcanic	
	Aeration Co.	
Castor Oil—		
E. Indies, 10 cs.	W. Balchin	
France, 20 cks.	F. Boehm	
Italy, 30	Barron, Harveys,	& Co.
Caustic Potash—		
France, 70 c.	Petri Bros.	
Chemicals (otherwise undescribed)		
Germany, 113 pkgs.	T. H. Lee	
" 94	A. & M. Zimmermann	
" 9	L. & I. D. Jt. Co.	
Holland, 7	J. Owen	
" 4	J. Barber & Co.	
" 18	H. Lorenz	
U. States, 2	F. Stahl Schmidt & Co.	
Holland, 2	200. Philipps & Graves.	
Cream of Tartar—		
Italy, 20 pkgs.	Howards & Sons.	
France, 15	B. & F. Wf. Co., Ld.	
" 20	W. C. Bacon & Co.	
Spain, 3	B. & F. Wf. Co., Ld.	
Dextrine—		
Germany, 10 pkgs.	Prop. Sun Wf.	
" 250	W. Balchin	
Dyestuffs—		
Aniline		
France, 1 pkge.	L. C. & D. Ry.	Co.
Argols		
Italy, 145 pkgs.	Thames S. T.	& L. Co., Ltd.
Cochineal		
Canaries, 30 pkgs.	W. M. Smith	& Sons
" 22	Sperling & Williams	
" 33	Swanston & Co.	
Cutch		
Rangoon, 400 pkgs.	H. T. Norton	
" 200	Wallace Bros.	
" 40	Elkan & Co.	
" 34	J. & G. Bullock & Co.	
" 230	A. Howden & Co.	
Extracts		
Canada, 160 pkgs.	A. J. Humphrey	
France, 400	L. J. Levistein & Sons	
Germany, 5	L. & I. D. Jt. Co.	
Canada, 120	Furness, Withy,	& Co.
France, 30	Carey & Sons	
Gambler		
E. Indies, 1,854 pkgs.	Brinkmann & Co.	
" 446	Sollas & Sons	
" 210	C. S. Cox & Co.	
" 4,189	Adamson, Gilfillan,	& Co.
" 1,969	L. & I. D. Jt. Co.	
Indigo		
Germany, 4 chts.	T. H. Lee	
E. Indies, 87	L. & I. D. Jt. Co.	
" 91	R. Von Glehn & Sons	
" 24	Eales & Rutherford	
Germany, 50	Co-op. L. Assn. Ltd.	
Holland, 1	E. Barber & Co.	
E. Indies, 61	Parry & Co.	
" 23	J. J. Croysdale & Co.	
" 40	Ross & Deering	
" 21	P. Macfadyen & Co.	
" 23	Arbuthnot, Latham,	& Co.
U. States, 8	L. & I. D. Jt. Co.	
" 35	Stansbury & Co.	
Holland, 4	J. Barber & Co.	
E. Indies, 3	Walker, Munsie, & Co.	

Myrabolams		
E. Indies, 56 pkgs.	Goad, Riggs,	& Co.
" 1,245	J. Graves	
" 101	L. & I. D. Jt. Co.	
Orchella		
France, 110 pkgs.	Prop. Bull Wf.	
Portugal, 53	"	
Safflower		
E. Indies, 3 pkgs.	L. & I. D. Jt. Co.	
" 13	Leach & Co.	
Shumac		
Italy, 1,000 pkgs.	J. Kitchin, Ltd.	
" 150	J. Knill & Co.	
" 50	W. Barter & Co.	
Tanner's Bark		
Canaries, 2 t.	A. & W. Nestitt	
Belgium, 26	Leach & Co.	
Valonia		
Italy, 1 t.	J. Knill & Co.	
A. Turkey, 152	Anning & Cobb	
Farina—		
France, 2 pkgs.	Hernu, Peron,	& Co.
Holland, 20	J. Barber & Co.	
" 50	J. Knill & Co.	
" 100	Seward Bros.	
" 100	Prop. Chmbln's Wf.	
Germany, 50	Oh'senschlager Bros.	
Flux Skimmings—		
U. States, 52 pkgs.	Hughes, Chemery,	& Co.
Glucose—		
Germany, 5 pkgs. 24 c.	F. Stahl Schmidt & Co.	
France, 200	200 Barrett, Tagant,	& Co.
U. States, 442	442 L. Norman	& Co.
" 180	820 Page, Son, & East	
" 70	420 L. Suto & Co.	
" 50	300 Ohlenschlager Bros.	
" 500	500 Trier, Meyer, & Co.	
" 250	250 L. & I. D. Jt. Co.	
" 100	561 W. Balchin	
" 1,050	1,267 R. G. Hall & Co.	
" 1,900	3,731 Windmuller, Mack, & Co.	
" 2,349	4,095 Prop. Chmbln's Wf.	
" 250	1,419 J. Knill & Co.	
" 6	48	
" 28	218	
Lead Acetate—		
Germany, 9 pkgs.	Tersford & Co.	
" 14	F. Boehm	
Magnesium—		
Germany, 1 pkge.	D. W. Greenhough & Son	
Manganese—		
Japan, 169 t.	Fellows, Morton, & Co., Ltd.	
Methyl Alcohol—		
Germany, 6 dms.	Elkan & Co.	
Holland, 7	Stein Bros.	
Mica—		
U. States, £50	W. M. Smith & Sons	
E. Indies, 30	"	
Ochre—		
Holland, 30 pkgs. 12 cks.	Philipps & Graves	
France, 4 cks.	J. L. Lyon & Co.	
Paraffin Wax—		
U. States, 1,460 brls.	J. H. Usmar & Co.	
Phosphate Rock—		
Holland, 250 t.	West & Penrose	
Belgium, 50	Lawes Manure Co.	
France, 200	Arnati & Harrison	
" 200	A. Hunter & Co.	
" 60	J. Burnett & Sons	
Pitch—		
U. States, 58 brls.	T. Simpson	
Belgium, 14 cks.	Poth, Hille & Co.	
Plumbago—		
U. States, 10 brls.	Thredder, Son & Co.	
Ceylon, 94	Prop. Sun Wf.	
Holland, 34 cks.	B. Galloway	

Potassium Bicarbonate—		
Holland, 38 pkgs.	A. & M. Zimmermann	
Potassium Carbonate—		
Germany, 10 pkgs.	F. Boehm	
France, 20 c.	Beresford & Co.	
Potassium Sulphate—		
Germany, 102 pkgs.	T. Farmer & Co.	
" 123	W. G. Blagden	
Pumice Stone—		
Italy, 6 t.	O'Hara & Hoar	
Holland, 10 c.	Philipps & Graves	
Saltpetre—		
Germany, 288 cks.	P. Hecker & Co.	
" 4	Petri Bros.	
" 3	Brown & Elmslie	
E. Indies, 983 bgs.	"	
" 912	Lucas & Spencer's Wf.	
" 1,429	Ralli Bros.	
Germany, 470	C. Wimple & Co.	
" 470	H. Grey, jr.	
Sodium—		
Belgium, 13 pkgs.	Beresford & Co.	
Starch—		
U. States, 150 pkgs.	Pickford & Co.	
Belgium, 21	Union L. Co., Ld.	
Germany, 570	Horne & Co.	
Holland, 1,252	C. J. Capes & Co.	
Germany, 502	L. Suto & Co.	
Stearine—		
France, 71 sks.	Beresford & Co.	
150 bgs.	Walbaum & Toseiti.	
Sydney, 29 cks.	Scott Aust. Invest	Co.
Holland, 62 bgs.	Robinson, Roberts, & Co.	
" 62	H. Hill & Sons	
Sulphur—		
Italy, 2 t.	H. Johnson & Sons	
" 7	G. Boor & Co.	
" 203	Brandram Bros. & Co.	
" 10	F. Smith	
" 5	Sharland & Co.	
" 5	Thames S. T. & L. Co. Ld.	
" 3	B. & N. Wf. Co., Ld.	
Tar—		
N. Russia, 505 brls.	Linck, Moeller, & Co.	
Tartaric Acid—		
Holland, 33 pkgs.	B. & F. Wf. Co., Ltd.	
Surpentine—		
N. Russia, 52 brls.	C. B. Leighton	
" 52	Chiesman & Co.	
Ultramarine—		
Belgium, 4 brls.	Leach & Co.	
Holland, 4 cks.	Philipps & Graves	
" 6	Haefner, Hilpert, & Co.	
" 25	Thames S. T. & L. Co., Ltd.	
Germany, 60	W. Thatcher	
" 22	G. Steinhoff, Sons, & Co.	
Varnish—		
U. States, 7 pkgs.	Taylor Bros.	
France, 15	Flageolet & Co.	
White Lead—		
Holland, 50 cks.	T. & W. Farmiloe	
" 20	Burrell & Co.	
" 10	Petri Bros.	
" 12	J. Parlevliet	
Belgium, 8 brls.	J. L. Lyon & Co.	
Germany, 6 cks.	A. Steadman & Co.	
" 43	T. & W. Farmiloe	
" 13	Petri Bros.	
" 11	R. Bew	
" 24	M. Ashby, Ld.	
" 20	Randall Bros.	
Holland, 20	C. Clifford	
France, 48	W. Harrison & Co.	
Zinc Oxide—		
Holland, 25 cks.	Burrell & Co.	
" 200	Soundy & Sons	
" 27 brls.	M. Ashby, Ld.	
Germany, 60	"	
" 25	F. Pryor	
" 25	Stobbs, Wilson, & Co.	
" 500	Union L. Co., Ltd.	
Holland, 12 pkgs.	Prop. Dowgate Dk.	
Zinc Sulphate—		
Germany, 31 pkgs.	F. Smith	

LIVERPOOL.

Week ending November and

Acetate of Lime—		
New York, 203 bgs.		
Acetic Acid—		
Rotterdam, 10 balns		
Aluminium—		
New York, 27 cs.	W. S. Sample	
Ammonia (Liquid)—		
Antwerp, 10 brls.		
Ammonium Acetate—		
Rotterdam, 2 brls.		
Aniline Colours—		
Rotterdam, 3 cks. 1 cs.		
Antimony—		
Antofagasta, 120 bgs.	Brownells & Co.	
Barytes—		
Antwerp, 16 cks. 50 bgs.		
Rotterdam, 11		
Bone Meal—		
Bombay, 3,000 bgs.		
Boric Acid—		
Leghorn, 17 cks.	Pickford & Co.	
" 30		
Borate of Lime—		
Antofagasta, 1,800 bgs.		
Valparaiso, 680 sks.		
Castor Oil—		
Marseilles, 146 brls. 37 cs.		
Chemicals (otherwise undescribed)		
Rouen, 14 cks.	Co-op W'sale Society, Ld.	
Chrome Ors—		
Salonica, 1,100 t.	Allatini Bros.	
Colours—		
Rotterdam, 24 cs. 15 cks.		
Antwerp, 1	J. T. Fletcher & Co.	
Cream of Tartar—		
Bordeaux, 2 cks.		
Dyestuffs—		
Cochineal		
Las Palmas, 16 bgs.	Sperling & Williams	
Gr. Canary, 10 bgs.	Widow, Duranty & Son	
Cutch		
Rangoon, 1,765 bxs. 400 cs.		
Extracts		
New York, 10 brls.		
Trieste, 457	Oak Extract Co., Ld.	
Fiume, 500	"	
Bordeaux, 250 cks.		
Rouen, 402	Co-op W'sale Society, Ld.	
Antwerp, 25 bgs.		
Fustic		
Trieste, 7 t.	A. Cross & Co	
" 10	J. Fletcher & Co	
Gambler		
Singapore, 361 bgs. 2,572 bls.		
Orchella		
Lisbon, 52 bgs.		
Sumac		
Fiume, 154 bgs.		
Farina—		
Fiume, 500 bgs.	Manchester Ship Canal Co.	
Glucose—		
New York, 450 brls.		
Dunkirk, 100 bgs.		
Manganese—		
Carrazal, 1,000 t.		
Coquimbo, 1,300		
Mica—		
New York, 6 brls.	T. Robinson & Son	
Mineral White—		
Trieste, 100 sks.		
Fiume, 100 bgs.		
Naphtha—		
Wilmington, 5,920 brls.		
Nitrate—		
Rotterdam, 9 cks.		

Ochre— Marseilles, 70 brls.	
Paint— Boston, 20 cs.	
Marseilles, 33 7 brls.	M. Collett
Montreal, 30	
Paraffin Scale— Rangoon, 330 bxs.	
Philadelphia, 684 brls	
Phosphate— Montreal, 206 t.	Phosphate Lime Co., Ltd.
Pitch— Bordeaux, 29 cks.	
Amsterdam, 91	
Marseilles, 105 brls.	
Plumbago— Colombo, 13 brls	
Potash— Rouen, 52 cks.	Co-op. W'sale Society, Ltd.
Antwerp, 5 dms.	
Dunkirk, 21 9 cks 2 brls.	
Pyrites— Huelva, 1,101 t.	Matheson & Co.
Rosin— Baltimore, 655 brls	
Saltpetre— Rotterdam, 10 cks.	
Size— Rouen, 16 cks.	R. J. Francis & Co
Soap— New York, 1 cs.	W. Cuthbertson
" 2	Burroughs & Wellcome
Marseilles, 213 115 bxs.	
New York, 7	
Sodium Chlorate— Havre, 20 kgs.	Cunard S. S. Co., Ltd.
Starch— New York, 1,646 bgs.	1,050 sks.
Ghent, 240 cs.	J. T. Fletcher & Co
Antwerp, 930	"
Amsterdam, 310 20 bxs.	
Stearine— Antwerp, 77 bgs.	1 cs.
Rotterdam, 100 bls.	
In transit, 150 bgs.	
Tallow— Boston, 162 tcs.	20 b-hhds.
New York, 120	20 hhds.
Rouen, 19 cks.	153 bgs.
New York, 100	R. J. Francis & Co.
Montreal, 350 brls.	Beil, Son & Co.
Tartar— Valparaiso, 10 sks.	Munch & Droste
Bordeaux, 13 cks.	338 bgs.
Tartaric Acid— Rotterdam, 23 cks.	
" 7	Sachse & Klemm
Tin Perchloride— Antwerp, 2 cks.	J. T. Fletcher & Co.
Ultramarine— Rotterdam, 23 cs	6 cks.
Verdigris— Bordeaux, 8 cks.	
White Lead— Rotterdam, 53 cks.	
Zinc Ashes— Boston, 61 brls.	
Zinc Oxide— Antwerp, 73 brls.	
Rotterdam, 50 cks.	
Zinc Skimming— Baltimore, 45 brls.	

HULL.

Week ending November 4th

Acid— Rotterdam, 2 cks.	G. Lawson & Sons
Albumen— St. Petersburg, 65 cs.	Wilson, Sons, & Co., Ltd.
Antimony— Hamburg, 10 cs.	Lofthouse & Saltmer

Barytes— Antwerp, 100 bgs.	Bailey & Leatham
Rotterdam, 24 cks.	Hutchinson & Son
" 22	Davis & Son
Camphor— Hamburg, 3 cks.	Wilson, Sons, & Co., Ltd.
" 1	Lofthouse & Saltmer
Caoutchouc— Hamburg, 1 cs.	C. M. Lofthouse & Co.
Carbolic Acid— Libau, 30 cks.	
Castor Oil— Libau, 15 cs.	Wilson, Sons, & Co., Ltd.
Chemicals (otherwise undescribed) Stettin, 79 cks.	Wilson, Sons, & Co., L. I.
Flushing, 4 cs.	Brach & Rothenstein
Bremen, 2 kgs 4 bkts.	Veltmann & Co.
Dusseldorf, 1	J. Good & Sons
Rotterdam, 57 pks	W. & C. L. Ringrose
Antwerp, 154	Wilson, Sons, & Co., Ltd.
Colours— Flushing, 3 cks.	G. Lawson & Sons
" 2 cs 1 4 pks.	Brach & Rothenstein
Ghent, 25	Hutchinson & Son
Rotterdam, 8 55	Veltmann & Co.
Bremen 1	J. Pyefinch & Co.
" 5	
Dusseldorf, 49 35	J. Good & Sons
Rotterdam, 96	W. & C. L. Ringrose
Flushing, 2 14	Hutchinson & Son
Rotterdam, 9	G. Lawson & Sons
" 3	Blundell, Spence, & Co.
Cream of Tartar— Bordeaux, 1 ck.	
Dyestuffs— Alizarine Rotterdam, 3 cks.	Hutchinson & Son
Dusseldorf, 2 cs. 11	J. Good & Sons
Rotterdam, 6 pks.	W. & C. L. Ringrose
Fustic Hamburg, 45 pcs.	Wilson, Sons, & Co., Ltd.
Indigo Amsterdam, 2 chts.	Wilson, Sons, & Co., Ltd.
Logwood Hamburg, 105 bgs.	Wilson, Sons, & Co., Ltd.
Madder Rotterdam, 1 ck.	J. Pyefinch & Co.
Myrabolams Bombay, 1,115 bgs.	
Dyestuffs (otherwise undescribed) Cologne, 1 cs.	J. Good & Sons
Farina— Stettin, 293 bgs.	Wilson, Sons, & Co., Ltd.
Ghent, 240 cs.	"
Harlingen, 2,180	Wilson, Sons, & Co., Ltd.
Hamburg, 300	
Glucose— Stettin, 10 cks.	Wilson, Sons, & Co., Ltd.
Rotterdam, 60 bgs.	W. & C. L. Ringrose
Kaolin— Rotterdam, 20 cks	Reckitt & Sons
Litharge— Rotterdam, 5 cks.	Hutchinson & Son
Manure— Ghent, 200 t.	Wilson, Sons, & Co., Ltd.
Naphtha— Rotterdam, 1 ck.	Hutchinson & Son
Phosphate— Punta Gorda, 750 t.	

Pitch— Ghent, 43 brls.	Wilson, Sons, & Co., Ltd.
Hamburg, 51	W. Jackson & Son
Potash— Dunkirk, 60 cks.	Wilson, Sons, & Co., Ltd.
Potassium Sulphate— Dunkirk, 50 cks.	Wilson, Sons, & Co., Ltd.
Pumice Stone— Rotterdam, 1 cs.	G. Lawson & Sons
Size— Rotterdam, 12 cs	W. & C. L. Ringrose
Starch— Rotterdam, 240 cs	G. Lawson & Sons
Antwerp, 200	Reckitt & Sons
Bremen, 670	Veltmann & Co.
Antwerp, 44	
Stearine— New York, 15 hhds.	Wilson, Sons, & Co., Ltd.
Antwerp, 10 bgs.	"
Tallow— St. Petersburg, 100 cks.	
New York, 46 pks. 156 tcs. 635 brls.	Wilson, Sons, & Co., Ltd.
Rotterdam, 33 tcs.	
Tar— St. Petersburg, 10 brls.	Wilson, Sons, & Co., Ltd.
Turpentine— Libau, 51 brls.	
Bordeaux, 5	Rhawnson & Robinson
Ultramarine— Rotterdam, 5 cs.	Hutchinson & Son
Cologne, 1 ck.	
Varnish— New York, 3 brls.	Wilson, Sons, & Co., Ltd.
Amsterdam, 1 bkt.	W. & C. L. Ringrose
Waste Salt— Hamburg, 40 t.	Wilson, Sons, & Co., Ltd.
White Lead— Antwerp, 25 cks.	Bailey & Leatham
Rotterdam, 47	Hutchinson & Son
Cologne, 37	
Zinc Oxide— Rotterdam, 25 cks.	Sissons Bros. & Co.
Zinc White— Cologne, 10 cks.	J. Good & Sons

GLASGOW.

Week ending November 9th.

Acetate of Lime— New York, 904 bgs.	
Alkali— Hamburg, 60 cks.	
Aniline Colours— Hamburg, 33 cks 5 cs.	
Antimony— Hamburg, 2 cs.	
Asbestos— Montreal, 1 bg.	
Barium Sulphate— Antwerp, 94 cks.	50 bgs.
Barytes— Rotterdam, 95 cks.	
Biphosphate of Lime— Marseilles, 90 cs.	
Castor Oil— Marseilles, 28 brls.	
Cellulose— Hamburg, 204 bls.	
Chemicals (otherwise un-described) Rotterdam, 2 bxs.	J. Rankine & Son
Chloride of Manganese— Hamburg, 3 cks.	
Chrome Ore— Macri, 2,850 t.	J. & J. White
Colours— Hamburg, 5 cks.	
Rotterdam, 9 2 cs.	J. Rankine & Son
" 14 9	

Cream of Tartar— Marseilles, 27 brls.	
Dyestuffs— Alizarine Rotterdam, 28 cks.	J. Rankine & Son
" 36 brls.	
Extracts Antwerp, 5 cks.	
Marseilles, 100 brls.	
Madder Marseilles, 7 brls.	
Farina— Hamburg, 45 bgs.	
Lead Acetate— Hamburg, 12 cks.	
Naphtha— Hamburg, 6 cks.	
Ochre— Marseilles, 72 brls.	
Paint— New York, 2 brls.	
Montreal, 1	
Painters' Colours— Antwerp, 6 cs.	
Phosphate of Lime— Bona, 610 t.	
Pitch— Antwerp, 13 cks.	
Marseilles, 10 brls.	
Potash— Rotterdam, 118 cks.	J. Rankine & Son
" 20	
Potassium Cyanide— Antwerp, 150 cs.	
Rosin— New York, 500 brls.	
Saltpetre— Hamburg, 100 kgs.	3 cks.
Soap— New York, 25 cs	
Sodium Acetate— Rouen, 17 cks.	
Stearine— Rotterdam, 17 cks.	J. Rankine & Son
Tallow— New York, 50 tcs.	
Ultramarine— Hamburg, 10 cs.	
Varnish— New York, 4 brls.	
Waste Salt— Hamburg, 327 cks.	
White Lead— Rotterdam, 1 ck.	J. Rankine & Son
Zinc Oxide— New York, 100 brls.	
Rotterdam, 25 cks.	J. Rankine & Son
Zinc Sulphate— Hamburg, 100 cks.	
Zinc white— Rotterdam, 100 cks.	J. Rankine & Son

TYNE.

Week ending November 4th.

Alum Earth— Hamburg, 17 cks.	Tyne S. S. Co.
Barytes— Antwerp, 24 cks.	Tyne S. S. Co.
Cryolite— Copenhagen, 1 ck.	
Farina— Hamburg, 50 bgs.	Tyne S. S. Co.
Limestone— Antwerp, 2 crts.	Tyne S. S. Co.
Phosphate— Antwerp, 270 t.	Langdales Chmcl. Manure Co.
Salt— Hamburg, 20 bgs.	Tyne S. S. Co.
Starch— Rotterdam, 142 cs.	Tyne S. S. Co.
Ultramarine— Hamburg, 4 cks.	Tyne S. S. Co.

GOOLE.

Week ending November 1st.

Alkali—	
Calais,	5 cks.
Antimony—	
Boulogne,	3 cks. 3 pkgs
Caoutchouc—	
Boulogne,	4 cks. 2 cs.
Chloride of Lead—	
Calais,	5 cks.
Dyestuffs—	
Alizarine	
Rotterdam,	46 brls. 79 pkgs.

Logwood	
Jamaica,	577 t.
Dyestuffs (otherwise undescribed)	
Boulogne,	32 cks. 8 cs. 25 pkgs.
Farina—	
Hamburg,	350 bgs.
Delfsyzhl,	2,270
Glucose—	
Calais,	200 bgs.
Potash—	
Calais,	54 dms.
Dunkirk,	28 2 cks.
Saltpetre—	
Rotterdam,	100 bgs.

Size—	
Antwerp,	10 cs
Waste Salt—	
Hamburg,	500 bgs. 60 t. 144 cks.
Zinc Oxide—	
Antwerp,	25 cks.

GRIMSBY.

Week ending November 4th.

Albumen—	
Hamburg,	6 cks.
Caoutchouc—	
Hamburg,	4 pkgs.

Chemicals (otherwise undescribed)	
Antwerp,	25 cks.
Hamburg,	29
Dyestuffs (otherwise undescribed)	
Dieppe,	17 cks.
Farina—	
Hamburg,	340 bgs.
Size—	
Antwerp,	5 pkgs. 3 cks.
Tar Oil—	
Antwerp,	26 cks
Zinc Ashes—	
Antwerp,	24 cks.

EXPORTS OF CHEMICAL PRODUCTS

OF

THE PRINCIPAL PORTS OF THE UNITED KINGDOM.**LONDON.**

Week ending November 8th.

Acid—	
Cape Town,	15 cs. £10
Ammonia (Liquid)—	
Rio de Janeiro,	1 c £6
Ammonium Carbonate—	
Bombay,	5 cs £13
Ammonium Chloride—	
B. Ayres,	2 t. 13 c. £95
Cape Town,	15 30
Ammonium Sulphate—	
Colombo,	3 t. 3 c. £47
Jersey,	1 16
Cologne,	50 561
Hamburg,	40 520
Arsenic—	
Wellington,	2 t. £24
Napier,	3 15 c. 76
Bisulphite of Lime—	
Bombay,	1 t. 15 c. £31
Calcutta,	13 cks. 90
Boric Acid—	
Libau,	3 c. £6
Borax—	
Hamburg,	6 cks. £45
Mannheim,	2 t. 9 c. 75
Carbolic Acid—	
Brussels,	3 cks £9
Carbon Bisulphide—	
B. Ayres,	1 t. 5 c. £26
Caustic Potash—	
Calcutta,	10 c. £13
Caustic Soda—	
Pt Elizabeth,	1 t. 2 c. £32
E. London,	8 12
Natal,	1 10 44
Chemicals (otherwise undescribed)	
Bombay,	25 pkgs. £233
Wellington,	4 kgs. 1 bx. 4 cs. 48
Chloride of Lime—	
Rio de Janeiro,	6 c. £20
Citric Acid—	
Jamaica,	1 kg. £9
Bombay,	2 18
Hamburg,	5 c. 6 cks. 57
Amsterdam,	2 67
Montreal,	5 41
Rotterdam,	1 40
Coal Products—	
Alizarine	
Montreal,	15 cks. £217
Bombay,	23 kgs. 392
Aniline Oil	
Rotterdam,	20 drs. £600
Genoa,	10 300
Aniline Salts	
Genoa,	6 cks. £40
Anthracene	
Rotterdam,	122 cks. £625
Benzol	
Hamburg,	80 cks 5 puns £826
Rotterdam,	60 23 drs. 802
Naphthalene	
Hamburg,	12 cks. £93
Helsingfors,	3 29
Paraffin Wax	
Melbourne,	20 bgs. £60
Auckland,	4 tks. 150
Pitch	
Port de Bouc, 1,800 t. £2,250	
Pyridine Bases	
Hamburg,	12 cks. £99

Tar	
Natal,	70 drs. 35 pkgs. £98
Tar Oil	
Quebec,	100 drs. £50
B. Ayres,	20 brls. 16
Toluol	
Boulogne,	10 cks. £95
Rotterdam,	20 pns. 200
Disinfectants—	
Bombay,	25 cks. £13
Sydney,	3 c. 14
Madras,	36 pkgs. £22
Melbourne,	50 238
Flowers of Sulphur—	
Pt. Elizabeth,	1 t. 9 c. £13
Guano—	
Mauritius,	50 t. £260
Guadeloupe,	460 4,600
Manure—	
Limon,	7 t. 3 c. £61
Jamaica,	2 16
Sourabaya,	250 3,375
Demerara,	50 563
Jersey,	158 16 796
Cape Town,	45 4 147
Nitric Acid—	
Jersey,	28 cbys. £52
Phosphorus—	
Halifax,	6 cs. £65
Potassium Bichromate—	
Calcutta,	10 c. £22
Potassium Bromide—	
Libau,	3 c. £6
Potassium Chlorate—	
Libau,	3 c. £11
Potassium Iodide—	
Calcutta,	1 cs. £66
Libau,	19
Saltcake—	
Tulorg,	215 t. £215
Sheep Dip—	
Punta Arenas, 134 pkgs. 14 cs £307	
Soda—	
Sulina,	2 t. 6 c. £11
Soda Ash—	
Passages,	13 c. £3
Soda Crystals—	
Sydney,	75 t. £225
Soda Salts—	
Brussels,	1 cs £10
Sodium Bicarbonate—	
Launceston,	2 t. £22
Auckland,	1 5 c. 10
Sodium Sulphate—	
Ghent,	65 t. £65
Sodium Tartrate—	
Brussels,	5 c. £71
Sulphur—	
Colombo,	2 t. £18
Demerara,	3 15 c. 24
Sulphuric Acid—	
Hamburg,	1 t. 5 c. £10
Algoa Bay,	50 cs. 33
Cape Town,	1 10 14
Superphosphate—	
Martinique,	600 t. £2,670
Tartaric Acid—	
Otago,	6 c £30
Melbourne,	2 t. 10 247
Auckland,	6 35
St. Petersburg,	1 t. 10 20 cks. 643

LIVERPOOL.

Week ending November 8th.

Acetic Acid—	
Lisbon,	1 t. 3 c. £18
Albumen—	
New York,	6 t. 4 c. 200
Alum—	
Constantinople,	4 t 17 c. £30
Syria,	2 18 1 q. 15
Malaga,	5 7 30
Cape Town,	3 6 18
Tampico,	1 5
Piræus,	2 8 7
Ancona,	2 3 10
Beyrout,	8 10 51
Alum Cake—	
Bombay,	4 t. 2 c. £12
Aluminous Cake—	
Calcutta,	19 t. 6 c. £70
Ammonia (Liquid)—	
Montreal,	1 t. £31
Bombay,	3 c. 15
Ammonium Carbonate—	
Rangoon,	7 c. £11
Vigo,	1 3 q. 19
Marseilles,	3 2 5
Copenhagen,	1 t 19 1 64
Ammonium Chloride—	
Amsterdam,	7 c. £13
Malta,	10 11
Cephalonia,	3 1 q. 6
Alexandria,	10 17
Beyrout,	1 t. 10 52
Montreal,	2 85
Syria,	6 3 12
Patras,	3 2 6
Ammonium Sulphate—	
New York,	50 t 7 c. 2 q £660
Valencia,	334 14 3 4,284
Antwerp,	30 350
Sourabaya,	62 806
Gr. Canary,	10 2 134
Punta Arenas, 134 pkgs. 14 cs £307	
Barcelona,	10 1 122
Hamburg,	20 13 268
Amorphous Phosphorus—	
Kobe,	4 c. £68
Beaching Powder—	
Ancona,	18 cks.
Baltimore,	222
Boston,	123
Calcutta,	250
Rio de Janeiro,	12
Rouen,	36
Vera Cruz, 50 brls. 3	
Vigo,	6
Copenhagen,	10
Genoa,	70
New York,	43 20 bxs.
Bone Ash—	
Marseilles,	8 t. 3 c. 1 q. £151
Boric Acid—	
New York,	4 t. 18 c. 2 q. £158
Borax—	
Passages,	5 t 1 q. £130
Gothenburg,	1 2 c 28
Campana,	5 7
Vera Cruz,	1 10 42
Antwerp,	4 18 2 135
Melbourne,	3 2 91
Rotterdam,	10 7 3 308

Hamburg,	10 t. 1 q. 1 q. 321
Stockholm,	1 2 33
Calcined Magnesia—	
Lisbon,	1 cs.
Calcium Chloride—	
Boston,	24 t. 11 c. £56
Carbolic Acid—	
Rotterdam,	15 t £900
New York,	3 14 190
Hamburg,	4 19 232
Castor Oil—	
Opobo,	3 cs.
Caustic Potash—	
San Francisco,	3 t 6 c 1 q. £75
Caustic Soda—	
Acajutla,	32 dms.
Algoa Bay,	26 cs
Bahia,	30 dms.
Bari,	35
Havre,	4
Mexico,	46
New York,	450 30 bxs.
Oporto,	8
Pernambuco,	30
Rouen,	52
Vigo,	3
Ceara,	30
Corunna,	20 brls.
Galatz,	30
Havana,	15
Ibrail,	43
Leghorn,	40
Lisbon,	10
Pay-sandu,	50
Trinidad,	20
Chemicals (otherwise undescribed)	
Naples,	1 t. £35
Gothenburg,	1 16 45
Alexandria,	1 35
Hillao,	1 25
Hamburg,	12 22
Larnaca,	12 21
Accra,	2 2 q. 23
Genoa,	2 70
Venice,	1 5 43
Philadelphia,	13 6 340
Odessa,	4 2 144
China Clay—	
Boston,	309 t 10 c.
New York,	50
Rio de Janeiro,	4
Leghorn,	2 bxs.
Rosario,	10
Chromate of Iron—	
Havre,	1 t. 12 c. £18
Citrochloric Acid—	
Alexandria,	1 cs. £6
Coal Products—	
Aniline	
Oporto,	2 pkgs.
Aniline Colours	
New York,	13 kgs. 1 bx. q cks.
Salonica,	8 cs.
Aniline Oil	
Ghent,	5 dms.
New York,	25
Rouen,	5
Aniline Salts	
Piræus,	3 t. 7 c. £175
New York,	69 cs. 40 brls.

Pitch			Beyrout, 30 kgs.			Soap—			Sodium Bicarbonate—		
Bathurst,	10 cks.		Boma,	11 cks		Alexandria,	18 bxs.		Bari,	50 kgs.	10 cks.
Bilbao,	45 lrls.		Bombay,	20 dms		Algao Bay,	1,844 37 cs.		Boston,	50	20
Tar			B. Ayres,	100	10 brls.	Assnee,	25		Canterbury, P.Z.	50	10
Bathurst,	5 cks.		Calcutta,	6 100	21 cs.	Barbadoes,	850		Malta,	20	10
Callao,	10 brls.		Demerara,	180 3 12	2	Batavia,	2,000	2 kgs.	Montreal,	875	20
Tar Oil			Guantanamo,	12	5 2	Bathurst,	40		Tampico,	275	20
Ghent,	2 dms.		M. Video,	2		Belize,	654		Trieste,	40	11
Cobalt Oxide—			Newcastle,	2	66	Bombay,	600		Algao Bay,	20	6
Gijon,	1 c.	£32	Oporto,	25	330 1	Calcutta,	20	5 10 cks.	Batavia,	20	
Copperas—			Para,	2 tcs.	6	Cape Lahou,	20		Calcutta,	500	
Wellington, N.Z.,	2 t. 13 c.	1 q. £5	Port au Prince,	12	13	Cape Town,	1,029 58	1 bdl.	Cape Town,	20	
Calcutta,	25 1	1 50	Rio de Janeiro,	11 2		Copenhagen,	30		M. Video,	200	24
Montreal,	9 17	13	Rosario,	2	5	Curacao,	25		New York,	200	
Bombay,	108 18	3 178	St. Nazaire,	28		Dominica,	20		Puerto Cabello,	10 cs.	
Ancona,	4 10	68	Valparaiso,	2	10	E. London,	2,385 25		Rotterdam,	25	
Alexandretta,	7 10	3 14	Vigo,	5	6	Genoa,	27		Singapore,	17	
Caldera,	1 19	1 8	Amsterdam,	22	95	Gibraltar,	300		Valparaiso,	200	
Copper Sulphate—			Bilbao,	60	20	Guadeloupe,	2,027		Venice,	50	
Cape Town,	6 t.	£96	Boston,	60	20	Havre,	300 970		Sodium Carbonate—		
Gr. Canary,	2 19 2	43	Galatz,	100	20	Hong Kong,	500 20		Barcelona,	35 kgs.	
Constantinople,	34 16	1 530	Hong Kong,	100	1	Lagos,	30	2	Sodium Chlorate—		
Bordeaux,	10 2	150	Humacao, 6 tcs.	3	13	Lisbon,	10		Antwerp,	50 kgs.	
Guadalajara,	10 1	2 150	Piræus,	3	1	Malta,	1,000		Genoa,	20	
San Louis,	3 1	45	S. John's, Nfld.,	261	16	Menada,	625		Hamburg,	5	
Antwerp,	15 13	3 229	Santiago,	9	24 7	Mossel Bay,	200		Vera Cruz,	5	
Venice,	4 8	2 64	S. Thomas, W.I.,	1		Natal, Brazil,	80		Sodium Fluorate—		
Naples,	6 13	1 99	Talcahuano,	30		Parnahyba,	80		Hamburg,	50 bgs.	
Bari,	4	2 60	Valparaiso,	204		Piræus,	230		Sodium Hyposulphite—		
Batoum,	10 2	1 150	Vera Cruz,	150		Pt. Natal,	250		Montreal,	50 kgs.	
Copenhagen,	10 2	1 150	Paraffin Wax—			Rangoon,	100		Sodium Phosphate—		
Ancona,	7 3	3 122	Rio de Janeiro,	4 cs.		San Fernando,	200		Pasages,	1 ck.	
Salina Cruz,	8 2	136	Smyrna,	9 bgs.		San Juan, P.R.,	300 15		Sodium Silicate—		
Vera Cruz,	10 10	1 178	Phosphorus—			Shanghai,	8,720		Cartagena, Sp.	17 brls.	
Nueva Laredo,	10 10	1 178	St. Luis Potosi,	10 cs.	£110	Trinidad,	1,000		Lisbon,	48 cks.	
Ciudad Juarez,	10 10	1 178	Plumbago—			Valparaiso,	100 25		Montreal,	15	
Cream of Tartar—			Bilbao,	6 bgs. 5 cks.		Amsterdam,	200 500		Sodium Sulphate—		
Tonalá,	5 c.	£23	Potaash—			Antwerp,	200		Bombay,	100 bgs.	
Dried Blood—			Copenhagen,	6 c.	£6	Constantinople,	11		Sulphur—		
Boston,	4 t. 5 c.	1 q. £230	Puerto Cabello,	1 ck.	5	Fiume,	20		Rio de Janeiro,	4 t. 14 c.	24
Gr. Canary,	10	71	Lima,	4	18	Higo,	300		Montreal,	89	5
Guano—			Potassium Carbonate—			Lanzarote,	64		Boston,	200	2
Demerara,	5 t. 7 c.	2 q. £32	Valencia,	2 t. 14 c.	3 q. £36	Livingstone,	100		Antwerp,	10	1
Gypsum—			Hamburg,	1 t.	£56	Montreal,	250		Sulphuric Acid—		
Wellington, N.Z.,	6 t. 10 c.	£10	New York,	3 15 c.	224	New York,	94		M. Video,	1 t. 10 c.	
Hydrochloric Acid—			Higo,	47 10	2,820	Rotterdam,	500		Rio de Janeiro,	17	
Rangoon,	1 c. 3 q.	£6	Boston,	7 15	457	St. John's, Nfld.,	300 1		Superphosphate—		
Iron Oxide—			Vera Cruz,	5	17	Sherbro,	56		Valencia,	65 t. 1 c.	
Havre,	9 c. 3 q.	£6	Yokohama,	5	338	Sierra Leone,	5		Venice,	1,515 11	
Lead Acetate—			Rotterdam,	4 4	256	Singapore,	5		Tartaric Acid—		
Oporto,	10 c.	£14	R. Ayres,	1 10	100	Teneriffe,	424		Algao Bay,	1 c.	
Lime—			Naples,	10	36	Toronto,	750		Varnish—		
Toronto,	200 cs.		Genoa,	3 5	227	Soda Alkali—			Havana,	1 cs.	
Magnesia—			Potassium Prussiate—			Acajutla,	35 brls.		Madras,	11 c.	
Barcelona,	6 t. 4 c.	2 q. £96	Boston,	9 t. 19 c.	3 q. £800	Smyrna,	50		White Lead—		
Puerto Cabello,	2 cs.		Salt—			Venice,	40		Calcutta,	80 kgs.	
Magnesium Chloride—			Adjudah,	8 t.	10 c.	Zante,	15		Zinc Chloride—		
Rio de Janeiro,	2 cks.	£35	Algao Bay,	1 10 c.		Soda Ash—			Bombay,	1 t. 13 c.	34
Magnesium Citrate—			Antwerp,	235		Bahia,	20 brls.		Rio de Janeiro,	1 ck.	
Corunna,	1 cs.		Calcutta,	3,613		Baltimore,	275 tcs. 19 cks.	1,480	Zinc White—		
B. Ayres,	2		Dunedin,	242	4	Boston,	31 118	2,120	Iquique,	15 cs.	
Magnesium Sulphate—			Ghent,	95	8	B. Ayres,	200 brls. 30		HULL.		
Constantinople,	10 brls.		Hamburg,	25		Candia,	110		<i>Week ending November 4th</i>		
Rio de Janeiro,	50 kgs		Melbourne,	25		Mexico,	60		Alkali—		
Manganese—			Monrovia,	3		Montreal,	23 tcs. 5	400	Hamburg,	1 cs.	
Ronen,	25 cks.		Newcastle,	189	5	New York,	261 206	6,812	Stettin,	20 cks.	
New York,	2 c.		New York,	240		Philadelphia,	258 200	1,176	Ammonium Sulphate—		
Manure—			Rotterdam,	238	244 cs.	Amsterdam,	250	250	Rouen,	101 bgs.	
Malaga,	10 t. 1 c.	£80	Adelaide,	1 1		Cadiz,	25		Aniline Salts—		
Rocheport,	120	355	Amsterdam,	2	13	Cape Town,	20 brls.		St. Petersburg,	20 cks.	
Havre,	50 5	1 q. 394	Baltimore,	50		Fiume,	150		Anthracene—		
Gr. Canary,	10	40	Cameroon,	40 10		Ghent,	50		Rotterdam,	30 cks.	
Metallic Sodium—			Conakry,	41		Gothenburg,	100		Benzol—		
New York,	2 t. 2 c.	£451	Faroe Isles,	155		Higo,	50		Rotterdam,	24 cks.	
Rotterdam,	3 16	3 q. 726	Lagos,	34		Kobe,	125		Bleaching Powder—		
Ochre—			Landana,	100		Piræus,	10		Bombay,	33 cks.	
Corunna,	4 cks. 4 brls.		Melbourne,	25		Pt. Natal,	36		Harlingen,	10	
Paint—			Montreal,	117		Rotterdam,	7		Naples,	45	
Cadiz,	20 dms.		Old Cala' ar,	4c		Salonica,	30		Stettin,	22	
Calcutta,	360 kgs. 2 cks.		Quebec,	10		Smyrna,	100	200	Borax—		
Callao,	102		Rio de Janeiro,	7 18		Trieste,	200		Antwerp,	50 cks.	
Cienfuegos,	3 cs.	3	San Francisco,	56		Volo,	10		Christiania,	1 cs.	
E. London,	4	175	Sierra Leone,	200		Yokohama,	100		Caustic Soda—		
Galatz,	175	3	Stockholm,	162		Soda Crystals—			Abo,	1 ck.	
Gr. Canary,	14		Trinidad,	36		Boston,	20 brls.		Bombay,	17 dms.	
Jamaica,	100		Treborg,	97		Calcutta,	20		Chemicals (otherwise under)		
Kerassunde,	8		Wellington,	10	235 bxs.	Montreal,	722	300 kgs.	Amsterdam,	10 cks.	
La Pallice,	6	8	Salt Cake—			Oporto,	20		Antwerp,	1 cs. 5	6 pkgs
Opobo,	6		Baltimore,	50 t. 11 c.	£93	Pernambuco,	160		Abo,	1 10	
Colombo,	40	40	Philadelphia,	5	10	Philadelphia,	280 cks.		Bombay,	910	
Gibraltar,	40	3	Saltpetre—			New York,	280	20	Bremen,	1	
Guayaquil,	2	6	Valparaiso,	11 t. 2 c.	2 q. £251	Pt. Natal,	20		Copenhagen,	10 60	
Hamburg,	2	3	Manaos,	1	24	Soda Salts—			Christiania,	16 101	23
Kinsebo,	8	1	Syra,	3 18	3 85	Montreal,	17 cks.		Gothenburg,	20 pks. 3	
Matadi,	8		Sheep Dip—			Sodium Arseniate—					
Mexico,	9		B. Ayres,	22 t. 9 c.	£435	Paris,	9 brls.				
Painters' Colours—			Calcutta,	18	19	New York,	20 cks.				
Accra,	60 kgs.	10 dms.	Size—			Sodium Borate—					
Auxcayes,	5 cks.		Rotterdam,	20 cks.		Hamburg,	61 cks.				
Bahia,	10					New York,	10 bgs.				
Bathurst,	1					Halifax,	14 brls.				
						Vera Cruz,					

Hamburg,	31 cks.	5 pkgs.	125
Harlingen,	20		
Karrachee,	250		
Libau,	78		
Naples,	16		
Odessa,	87		
Riga,	= pks.		
Rotterdam,	1	103	101
Seettin,	37	4	20
St. Petersburg,	26		

Cottonseed Oil—

Bremen,	100 c.
Hamburg,	253
Leghorn,	200
Marseilles,	205
Naples,	100
Rotterdam,	655

Creosote—

Christiania,	1 ck.
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Dyestuffs (otherwise undescribed)

Aalesand,	1 bl.
Rouen,	4 cks.
Rotterdam,	12
Seettin,	1
St. Petersburg,	1 bl.

Linseed Oil—

Bombay,	170 c.
Bergen,	32
Bordeaux,	35
Christiania,	316
Christiansand,	20
Drontheim,	62
Hamburg,	34
Rotterdam,	51

Manure—

Dunkirk,	54 t.
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Mineral White—

Antwerp,	44 cks.
Bergen,	30 bls.
St. Petersburg,	1,400

Naptha—

Antwerp,	69 cks.
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Ochre—

Amsterdam,	7 cks.
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Paint—

Bombay,	560 kgs.
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Painters' Colours—

Amsterdam,	16 cks.
Antwerp,	3 cs. 34
Bombay,	120 5 250 pks.
Bordeaux,	1
Copenhagen,	8 1 cs.
Christiania,	15 5 dms. 44 pks.
Ghent,	11
Genoa,	24
Hamburg,	82
Konigsberg,	25
Leghorn,	25
New York,	10
Riga,	1 cs. 6
Rouen,	19
Rotterdam,	10
Seettin,	52
St. Petersburg,	139

Pitch—

Antwerp,	463 t.
Abo,	5 cs.
Genoa,	120 t.

Soap—

Christiania,	1 cs.
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Tallow—

Bombay,	42 cks.
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Tar—

Amsterdam,	11 cks.
Abo,	1
Bremen,	2
Gothenburg,	150
Hamburg,	10
Odessa,	100
Seettin,	6

Yarnish—

Antwerp,	1 cs.
Bombay,	125 dms.
Bordeaux,	1 1 ck.
Copenhagen,	3
Gothenburg,	1
Genoa,	2
Hamburg,	11
Naples,	7

GLASGOW.

Week ending November 9th.

Acid—

Rangoon,	£27
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Acetate of Lime—

Antwerp,	13 t. 9 c. £130
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Ammonium Sulphate—

Calcutta,	5 t. £60
Demerara,	25 300
Nantes,	55 2 3/4 c. 665

Riga,	5 t. £67
Hamburg,	32 435
Asbestos—	
Hamburg,	3 pkgs. £26. 10s.
Caustic Soda—	
Rangoon,	7 t. 6 1/4 c. £75
Montreal,	11 18 106
Singapore,	7 1/4 60
Quebec,	656

Chemicals (otherwise undescribed)

Trinidad,	£43
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Coal Products—

Pitch	
Bombay,	15 t. 1 1/4 c. £36
Nantes,	50 3 50
Amsterdam,	201 279
New York,	53 15 80
Quebec,	238 6 575
Hamburg,	51 brls. 10

Copperas—

Bombay,	16 t. 11 c. £44
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Cottonseed Oil—

Demerara,	3 t. 8 1/4 c. £85
Hamburg,	40 brls. 174
Rotterdam,	206
Hungary,	3 19 1/4 93

Dyestuffs—**Extracts**

Montreal,	£99
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Fustic

Quebec,	1 t. 12 1/4 c. 73
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Fustic Extract

Montreal,	5 49
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Logwood

Montreal,	13 t. 16 1/4 c. £101
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Quebec

Quebec,	27 14 232
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Farina—

Antwerp,	2 t. 9 c. £25
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Lead Acetate—

Bombay,	4 t. 10 1/4 c. £67
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Lime—

Trinidad,	5 t. £300
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Linseed Oil—

Demerara,	8 t. 3 1/2 c. £143
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Montreal,	8 12 1/4 194
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Chili,	15 12 1/2 430
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Hong Kong,	1 9 1/4 34
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Litharge—

Quebec,	10 t. 14 1/4 c. £148
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Muriatic Acid—

Bombay,	4 t. 18 c. £24
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Ochre—

New York,	5 t. 7 c. £88
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Paint—

Bombay,	7 t. 1/2 c. £66
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Hamburg,	350 kgs. 40
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New York,	5 8 1/2 99
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Chili,	16 12 1/2 281
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Singapore,	12 16 1/2 191
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Hong Kong,	5 72
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Painters' Colours—

Calcutta,	5 t. 15 c. £84
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Rangoon,	220
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Rotterdam,	9 cks. 60
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Amsterdam,	1 4
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Paraffin Wax—

Nantes,	5 t. 6 1/4 c. £150
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Riga,	137 bgs. 274
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Hamburg,	35 40 cs. 200
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Hungary,	12 15 1/2 340
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Chili,	1 17 1/4 56
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Phosphate—

Trinidad,	2 t. 17 1/4 c. £53
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Potassium Bichromate—

Christiania,	12 cks. £194
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Bombay,	3 t. 17 1/2 c. 146
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Antwerp,	9 1 350
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Rotterdam,	25 402
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Italy,	13 8 544
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Hamburg,	2 49
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Potassium Nitrate—

Quebec,	1 t. 10 c. £31
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Salt—

Trinidad,	45 t. 17 1/4 c. £107
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Soap—

St. John's, N.F.,	2 t. 8 1/2 c. £41
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Trinidad,	14 17 1/2 225
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Chili,	1 2 20
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Soda Ash—

Philadelphia,	295 t. 16 1/2 c. £1,030
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Sodium Bichromate—

Oporto,	1 t. 1 1/2 c. £35
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Montreal,	3 14 1/4 129
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Bombay,	1 7 41
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Antwerp,	8 17 1/4 280
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Italy,	28 18 892
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Sodium Sulphate—	
Quebec,	19 t. 3 c. £88

Sulphuric Acid—

Rangoon,	51 t. 4 1/4 c. £320
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Demerara,	4 3 1/2 40
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Bombay,	8 7 40
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Tallow—

Oporto,	1 t. £31
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Rotterdam,	11 3 c. 396
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Amsterdam,	1 30
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White Lead—

Oporto,	£298
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TYNE.

Week ending November 4th.

Alkali—

Christiania,	6 t. 11 c. 6
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Rotterdam,	3 6
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Amsterdam,	25 5
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St. Petersburg,	44
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Alum—

Montreal,	15 t. 4 c.
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Alumina Sulphate—

Rouen,	7 t. 1 c.
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Ammonium Chloride—

Odessa,	5 t. 15 c.
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Ammonium Sulphate—

Hamburg,	15 t.
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Rotterdam,	55
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Antimony—

Antwerp,	2 t. 10 c.
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Rotterdam,	2
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Montreal,	4
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Arsenic—

Gothenburg,	18 c.
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Barium Bin oxide—

Rouen,	10 t. 2 c.
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Barium Carbonate—

Hamburg,	110 .
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Rouen,	83
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Rotterdam,	110
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Libau,	5
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Batoum,	2 17 c.
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St. Petersburg,	7 4
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Blanc Fixe—

St. Petersburg,	7 t. 15 c.
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Montreal,	6 1
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Bleaching Powder—

Antwerp,	6 c.
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Abo,	5 t. 11
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Helsingfors,	128 8
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Wyburg,	9
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Hamburg,	12 10
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Bilbao,	11 8
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Odense,	3 12
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Christiania,	7 16
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Amsterdam,	25 10
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Copenhagen,	1 5
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Libau,	25 6
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Konigsberg,	7 4
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Norrkoping,	5
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St. Petersburg,	174
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Stockholm,	5 4
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Montreal,	1 11
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Gefle,	93 13
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Boric Acid—

St. Petersburg,	4 c.
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Caustic Soda—

Antwerp,	33 t. 5 c.
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Abo,	4 15
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Helsingfors,	9 19
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Hamburg,	34 15
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Bilbao,	16 10
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WEDNESDAY, NOVEMBER 15th, 1893.

The values stated are F.O.R. at maker's works, or at usual ports of shipment in U.K. The price in different localities may vary.

		£	s.	d.	
Lime, Acetate (brown)	.. .. .	per ton	7	0	0
" " (grey)	.. .. .	"	11	5	0
Magnesium (ribbon and wire)	.. .. .	per oz.	0	2	3
" Chloride (ex ship)	.. .. .	per ton	2	10	0
" Carbonate	.. .. .	per cwt.	1	17	6
" Hydrate	.. .. .	per ton.	17	0	0
" Sulphate (Epsom Salts)	.. .. .	per ton	2	19	0
Manganese, Sulphate	.. .. .	"	17	15	0
" Borate	.. .. .	per cwt.	2	12	6
" Ore, 70 %	.. .. .	per ton	4	5	0
Methylated Spirit, 61° O.P.	.. .. .	per gallon	0	2	0
Naphtha (Wood), Solvent	.. .. .	"	c	3	9
" " Miscible, 60° O.P.	.. .. .	"	0	5	0
Oils:—					
Cotton-seed	.. .. .	per ton	23	0	0
Linseed	.. .. .	"	22	10	0
Petroleum, Russian	.. .. .	per gallon	0	0	3
" American	.. .. .	"	0	0	5½
Phosphorus (yellow)	.. .. .	per lb.	0	2	2
" (red)	.. .. .	"	0	2	9
Potassium (metal)	.. .. .	per oz.	0	3	7
" Bichromate	.. .. .	per lb.	0	0	4½
" Carbonate, 90% (ex ship)	.. .. .	per ton	16	10	0
" Chlorate	.. .. .	per lb.	0	0	8
" Cyanide, 98%	.. .. .	"	0	2	0
" Hydrate (Caustic Potash) 80/85 %	.. .. .	per ton	21	15	0
" " (Caustic Potash) 75/80 %	.. .. .	"	20	10	0
" " (Caustic Potash) 70/75 %	.. .. .	"	20	0	0
" Nitrate (refined)	.. .. .	per cwt.	1	2	6
" Permanganate	.. .. .	per cwt.	3	5	0
" Prussiate Yellow	.. .. .	per lb.	0	0	8¾
" Sulphate, 90 % (ex ship)	.. .. .	per ton	9	15	0
" Muriate, 80 % (do. )	.. .. .	"	8	0	0
Silver (metal)	.. .. .	per oz.	0	2	8½
" Nitrate	.. .. .	"	0	2	10
Sodium (metal)	.. .. .	per lb.	0	3	4
" Carb. (refined Soda-ash) 48 %	.. .nett	per ton	5	10	0
" " (Caustic Soda-ash) 48 %	"	"	4	10	0
" " (Carb. Soda-ash) 48 %	"	"	4	10	0
" " (Carb. Soda-ash) 58 %	"	"	4	2	6
" " (Soda Crystals)	"	"	3	5	0
" Acetate (ex-ship)	.. .. .	"	16	0	0
" Arseniate, 45 %	.. .. .	"	11	0	0
" Chlorate	.. .. .	per lb.	0	0	8¾
" Borate (Borax)	.. .. .	net, per ton.	28	10	0
" Bichromate	.. .. .	per lb.	0	0	3¾
" Hydrate (77 % Caustic Soda) (f.o.b.)	net pr. ton	"	12	0	0
" " (74 % Caustic Soda)	"	"	11	10	0
" " (70 % Caustic Soda)	"	"	10	15	0
" " (60 % Caustic Soda)	"	"	9	15	0
" " (60 % Caustic Soda, cream) (f.o.b.)	"	"	9	10	0
" Bicarbonate	.. .. .	"	7	0	0
" Hyposulphite	.. .. .	"	6	10	0
" Manganate, 30%	.. .. .	"	16	0	0
" Nitrate (95 %) ex-ship Liverpool	.. .. .	per cwt.	0	9	0
" Nitrite, 98 %	.. .. .	per ton	29	10	0
" Phosphate	.. .. .	"	15	0	0
" Silicate (glass)	.. .. .	per ton	5	7	6
" " (liquid, 100° Tw.)	.. .. .	"	4	5	0
" Stannate, 40 %	.. .. .	per cwt.	3	0	0
" Sulphate (Salt-cake)	.. .. .	per ton.	1	2	6
" " (Glauber's Salts)	.. .. .	"	1	10	0
" Sulphide	.. .. .	"	8	10	0
" Sulphite	.. .. .	"	5	15	0
Strontium Hydrate, 100%	.. .. .	"	8	10	0
Sulphocyanide Ammonium, 95 %	.. .. .	per lb.	0	0	7
" Barium, 95 %	.. .. .	"	0	0	5¼
" Potassium	.. .. .	"	0	0	7
Sulphur (Flowers)	.. .. .	per ton.	8	0	0
" (Roll Brimstone)	.. .. .	"	6	10	0
" Brimstone: Best Quality	.. .. .	"	4	2	6
Superphosphate of Lime (26%)	.. .. .	"	2	7	6
Tallow	.. .. .	"	28	0	0
Tin (English Ingots)	.. .. .	"	80	10	0
Tin Crystals		per lb.	0	0	6¾
Zinc (Spelter)		per ton	17	2	6
" Chloride (solution. 96° Tw.)		"	5	15	0

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LATE ADVERTISEMENT.

FOR SALE, to close a Trust Estate.—The Goodwill, Stock-in-Trade, Plant, and Machinery of the old-established and well-known Chemical Works carried on at Parkhead, Glasgow, by the late Mr. Robert Cameron. The ground and buildings may be sold with the business. Sealed Tenders will be received up to the 6th December next, by Messrs. Frame and Macdonald, solicitors, 149, Hope-street, Glasgow, who will give particulars to intending offerers.

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THE UNNECESSARY EVILS OF ADVANCEMENT.

WITH the growth of every advance in science or civilisation, there springs up a need for the means of using and applying such improvements, and not infrequently it happens that in the perfecting of such means, almost as much ingenuity and skill is expended as in the development of the primary improvement. The application of compressed gases to the requirements of opticians, the arts and manufactures, is a fitting instance of the truth of such a pronouncement.

With the introduction of compressed oxygen and other gases, came the demand for suitable cylinders to hold the compressed gases. Ordinary cylinders were found to be porous, and the customary gun-metal fittings and valves were no longer suitable.

In consequence, new valves were invented, and the manufacture of the cylinders was revolutionised, their manufacture in a seamless form by swaging, under hydraulic pressure from wrought plates becoming little short of a fine art.

For a time the manufacture of these cylinders was confined to a few firms; but with the extended use of compressed gases, on account of the ease with which they could be transported and utilized, that apparently inevitable attribute of the latter period of the nineteenth century—cheapness,—became an all-important factor. At what cost this craze for cheapness is sometimes satisfied may be seen from the report of the explosion which occurred at Bradford recently, which appears in these columns this week. A careful and unbiased perusal of the evidence which is there set forth shows only too clearly the importance of only the best and most suitable material being employed; and also that while such large numbers of these cylinders are used, the public, or even the vendors, have practically no means of judging whether the cylinders have been properly made and annealed or not.

The only thing they have to go by is the test to which the cylinders are subjected when they are refilled. But that this is not sufficient to prevent accidents as serious as that which has recently occurred, the very case in point shows, for the cylinder burst at a pressure of 1,800 pounds, although it had been tested about 48 hours before up to 3,360 pounds. As a matter of fact, the practice of subjecting such cylinders to excessively high tests, is of doubtful advisability, as the extreme pressure to which they are thus exposed only causes an undue strain, possibly leaving the cylinder weaker than it actually was before testing and permanently injured. It is not so hard to determine a safe test for cylinders made of known materials, but no amount of testing can overcome the tendency of a cylinder composed of too brittle steel to explode from concussion.

Strange to say, in the Bradford case no mention is made of how the cylinder which exploded was manufactured, or of what it was made exactly, but the engineering expert in his evidence showed most palpably that well-made cylinders could be and

had been submitted to extraordinary pressures and blows. It took a pressure of three tons to the square inch (just double that to which the exploded cylinder had been put) to burst a cylinder of different make, while another was dropped a distance of 22 feet on to an iron block, and no explosion resulted. Assuming the weight of a cylinder to be, as was stated in the evidence, 25 pounds, the cylinder which was dropped on to the iron block would have struck it with a force of approximately half-a-ton, compared with which the blow given to the cylinder which burst must have been a mere bagatelle.

There are, moreover, two points in the evidence which go a long way to account for the explosion of this particular cylinder. The evidence shows us that there are variations in the cost of these cylinders, some being cheaper than others; and, further, in this case a steel deficient in ductility had been used, possessing a tensile strength greatly beyond even the outside limit which a boiler-maker would venture to employ. Cheapness is an estimable quality in moderation, but when it entails the wilful substitution of unsuitable materials, leading to such fatal results, such actions fall unpleasantly short of another kind of wilful misdemeanour, which robbed of its pseudonymity conveys a more sinister import.

THE BRADFORD OXYGEN CYLINDER EXPLOSION.

AN EXTRAORDINARY CASE.

THE inquest on J. W. Fuller, aged fourteen, who met his death by the explosion of a compressed oxygen cylinder under circumstances detailed in the last issue of this *Journal*, was held last week by the Bradford Borough Coroner (Mr. J. G. Hutchinson). Mr. James Freeman appeared on behalf of the friends of the deceased; Mr. R. M. Macmaster for the Lancashire and Yorkshire Railway Company; Mr. Carr-Jackson, of King's Cross, London, for the Great Northern Railway Company; and Mr. Morgan for Messrs. Riley Bros. Mr. W. J. Crighton watched the proceedings for the Manchester Oxygen Company.

THE EVIDENCE.

Joseph Gledstone said he was manager to Mr. Murgatroyd, builder of Idle. On the 8th November he was going to the Great Northern Railway Station at about five minutes to six to proceed to his home. In Drake-street he noticed the deceased with two iron cylinders. He was carrying one on his left shoulder and dragging the other on the ground, having hold of it with his right hand. Witness walked behind the boy into the subway leading to the station, and before he reached the steps there was suddenly a loud explosion. Witness was not knocked down, but was much shaken, and his nerves had not yet recovered from the shock. Witness at once stepped forward and stooped to see the boy, who was lying on the ground. He was dead, and his head was dreadfully injured, and there were fragments of one of the tubes strewn all about. The other cylinder was perfect. Witness afterwards went to the Town Hall and made a statement on the matter. At the time of the accident witness did not see anyone else in the subway besides himself and the deceased, although the passage was generally much frequented.

By the Foreman: The cylinder which burst was the one which the boy was carrying on his shoulder. He saw the deceased drop the cylinder from his shoulder to the ground. There was a ring like a bell, and the explosion occurred instantly.

By Mr. Morgan: Witness did not see that the lad had any handcart. He was carrying the cylinders in Drake-street.

In reply to the Coroner, witness said that two of the gas-lights in the passage were extinguished by the explosion.

Superintendent Paul, of the Bradford Borough Police, said that half-an-hour after the explosion he went to the station. The body had then been removed, and the pieces of the broken cylinder had been gathered up. He collected fourteen pieces from different persons and also a sound cylinder. On Saturday morning he submitted the pieces for examination to Mr. Morley and Professor Goodman, of the Yorkshire College, and Mr. Ellis, of Messrs. Thwaites Bros.

Mrs. Jackson, mortuary attendant, said that she attended to the body of the deceased. The head was shattered and the left arm was cut open right to the elbow. She removed two large pieces of iron from the body, one being embedded in the head and the other in the arm.

Albert Kershaw said he was unpacker for Messrs. Riley Bros., lantern outfitters, of Cheapside, Bradford, for whom the deceased also worked. The deceased was instructed to take to the Exchange Station two cylinders, one charged with oxygen and the other with coal gas, filled so far as he knew by the Manchester Oxygen Company. The cylinders were to be taken in charge at the station by Mr. Dalby, who was also in the employment of Messrs. Riley Bros., and were to be conveyed to Queensbury for use there that evening. The deceased put the cylinders on a handcart and left the premises at about a quarter to six in the evening. The handcart was brought back to Messrs. Riley's warehouse about a quarter of an hour after the accident by five boys, whom witness did not know.

Henry Dalby, optician's assistant, said he was in the service of Messrs. Riley Bros. About twenty minutes to six in the evening he ordered the deceased to take two cylinders to the Exchange Station in time for the 6.7 p.m. train for Queensbury. They were intended for use that night, he himself being the exhibitor. One cylinder was painted red and the other black. The one painted red was charged with coal gas and the black one was charged with oxygen. The cylinders were filled at Manchester by the Manchester Oxygen Company. The oxygen cylinder had only come in the same morning. He could not say when the other came. The cylinder containing oxygen belonged to Messrs. Riley Bros. He was not certain as to the ownership of the coal-gas cylinder. He gauged both the cylinders about four o'clock the same afternoon. He found that each cylinder contained 120 atmospheres, which was a safe gauge. He had occasionally found cylinders a point over, but this point would be lost in the test and the cylinder would still be safe. He had knocked these cylinders about for four years and had never had any accident with them.

The Coroner: If the cylinder became bulged and its containing power was reduced, would not that increase the risk of explosion? Witness: Yes.

Have you proper boxes in which to pack these cylinders?—No.

Supposing you had such boxes, would not that lessen the liability to accident?—Yes.

By Mr. Freeman: Each cylinder would weigh about 25lb.

By Mr. Morgan: The cylinders are supposed to be tested before they come to us each time they are re-valved. The cylinder which exploded had been re-valved by the Manchester Oxygen Company. I told the boy to meet me at the Exchange Station on the Queensbury platform with the cart and the cylinders. He had a bag and parcel to take to the station besides. My instructions were that he was to meet me on the platform with the cylinders, and he was not to put them into a van or anywhere. When the cylinders come to my employers they are simply bare.

The Coroner: Tossed and thrown about?—Witness: Yes.

By Mr. Morgan: I have never seen one of these cylinders bulged. I have never regarded the cylinders as dangerous in any way.

By the Coroner: I have travelled frequently by rail with charged cylinders and have always taken them as personal luggage. I have always placed them in the luggage van.

By Mr. Macmaster: I have never declared to any railway company that the cylinders were dangerous goods. I have not seen the notice (produced) as to dangerous goods, hanging in the Exchange Railway Station.

A Juror: Is it customary for Messrs. Riley Bros. and similar firms to supply these cylinders to private individuals without assistants? Witness: In many a hundred cases.

In answer to further questions, witness said that the cost of each cylinder itself he should think would be about 35s. The price of the charge about 3d. or 4d. a foot.

Charles White, guard in the employment of the Lancashire and Yorkshire Railway Company, said that on the evening of Wednesday, November 8th, he was in the parcel office, which was near the Drake-street entrance of the subway. A few minutes before six o'clock the deceased lad came into the office and booked a parcel to go by train. Witness received and entered the parcel, and the lad then asked if he might leave his can and parcel-book in the office while he went into the station. Witness said he might, and the deceased then left. About two minutes afterwards witness heard the report in the subway and went to see what it meant. Finding the subway in darkness he returned to the office, and after locking the door returned into the subway. He then found a crowd round the body of the deceased. Soon afterwards he noticed a handcart standing in Drake-street near the parcel office. There being no one with the cart, he had it removed to the station premises, and he afterwards learned that it had been claimed by Messrs. Riley and had been removed to their premises.

John Goodman, professor of engineering at the Yorkshire College, said that on Saturday, November 11th, in company with Mr. Morley and Mr. Ellis, he inspected the fourteen pieces of metal in the possession of Superintendent Paul, and also the sound coal-gas cylinder. Every piece was carefully examined. The fractures in every part were crystalline—coarsely crystalline in the portions of the bottom and top of the cylinder, but of finer grain in the centre. There was a peculiar

fracture near the top of the cylinder, which was different in shape from any other fracture. This might or might not have been due to a flaw in the material. The point was a doubtful one, and opinions might differ. The spot was carefully examined, but he could not come to any definite conclusion. The fractured pieces showed bulging which might have been done in the accident. The thickness of the metal varied very much over the cylinder. It was impossible to avoid some little variation in making such cylinders, but he certainly thought the variation much greater than it ought to have been. In a well-made cylinder the variations would not be so great. He had only a limited knowledge of the manner of making such cylinders.

The Coroner: Would not the varying thickness of the metal be a source of weakness?—Witness: Yes and no. If the thinnest portion was sufficient to bear the pressure, the variation of the thickness would be no weakness, but if the metal was so badly disposed that the thinnest portion was unable to bear the pressure that thickness would of course be a weakness. The risk of bulging, Mr. Goodman went on to say, would certainly be greatest where the metal was thinnest. He took away to Leeds two pieces of the broken cylinder which he first had photographed. The pieces were then cut up into test pieces and subjected to a series of experiments. A sound cylinder supplied by Messrs. Riley as a duplicate was also handed to him, and this he caused to be cut into pieces, and found it as variable in thickness as the one which was broken. These pieces were also subjected to experiment, and the witness handed in a detailed report of the character of the tests applied and the results obtained. Steel ought not to be used of a greater tensile strength than 32 tons per square inch, and no boilermaker would dare to use it of greater tensile strength for internal pressure. The steel of the cylinder in question was very high indeed in tensile strength. In some cases it was over fifty tons per square inch. This in itself was not harmful, but it was always considered that steel of very high tensile strength was very brittle, and therefore unsuitable for internal pressure, especially when, as in the case of an oxygen cylinder, it was likely to be subject to much knocking about. The remedy, of course, would be to use material of great ductility. The steel actually used was, in his opinion, unsuitable for the purpose. The maximum thickness of the body of the duplicate cylinder was found to be '242in., and the minimum was '164in. In the cylinder which burst he found that the pieces varied from '172in. to '205in. in thickness, though he might perhaps find a thicker piece on examination.

The Coroner: You have heard the evidence that this cylinder fell from the shoulder of the deceased on to the concrete floor. Does that explain its bursting?—Yes; after looking at the figures of my experiments, which show how very hard and brittle the material is. Although the tensile strength is very great, it has very little ductility. If the material used were good material, there ought not to be the slightest danger of an explosion from such a fall on to the floor. This morning, before coming here, I took one of the cylinders which we are constantly using at the Yorkshire College, and dropped it 22ft. 6in. on to a cast-iron block. There was no explosion, and the cylinder received only a small dent.

In reply to further questions, witness said that the cylinder of which he had just spoken was charged with oxygen at the time, and it was charged by the same firm—the Manchester Oxygen Company—which filled the cylinder that burst. But it was a cylinder of a different make to that which burst. He then took a cylinder similar to the one he dropped that morning and cut it up, and found that the thickness was—maximum '232in. and minimum '178in. A third cylinder was burst by hydraulic pressure, the bursting taking place at between 59cwt. and 60cwt. per square inch. These experiments confirmed his opinion that the material used in the cylinder which burst and killed the deceased was improper. The annealing of steel reduced the tensile strength somewhat, but increased its ductility and made it more capable of stretching without breaking. The annealing process was indispensable, and no cylinder ought to be sent out until it had been thoroughly annealed. With regard to tests, he believed that cylinders ought to be tested to a considerably greater extent than the working pressure, but he believed that it should not be as much as double the working pressure, as it was possible permanently injure a cylinder in the testing.

The Coroner: Your opinion is that the cause of the bursting in this case was the defective material of which the cylinder was composed?—Witness: Yes; but I would hardly say "defective" material—it was unsuitable material, and if it had been annealed the chances of accident would have been very much less. Witness went on to say that he did not think it could be said that there was any danger attending the use of a properly-constructed and annealed cylinder. There were probably some hundreds of thousands of these cylinders in circulation in the country, and this was the very first accident which had ever occurred from the breaking of an oxygen cylinder or "bottle." Of course, if the cylinder or "bottle" were made of unsuitable material there would be serious danger.

In reply to Mr. Morgan, witness said there would be no outward appearance to indicate that the cylinder in question was of unsuitable

material and had not been annealed, for the cylinder had been painted. At the Yorkshire College the cylinders used were not subjected to any test whatever, the makers being trusted. He had himself never cut up and tested a cylinder before this accident. His predecessor, however, had on one occasion cut up a cylinder and made tests of which witness had the result. There was a mark on the valve of the cylinder which burst and killed the deceased indicating that it had been tested to a ton and a half per square inch. He declined to commit himself to any opinion as to whether this test was sufficient for a working pressure of 1,800lb. (120 atmospheres).

A conversation took place between the Coroner and Mr. Macmaster with regard to the interest which the railway companies had in the matter, and Mr. Macmaster mentioned that a conference of high railway officials was taking place in London to consider whether any further precautions should be taken in connection with the carriage of these cylinders, and whether any further regulations were necessary. He should expect, after what had been learned that day, that the present regulations were amply sufficient. The matter would receive most careful attention.

Mr. Goodman, resuming, mentioned that an oxygen cylinder was some time ago dropped accidentally upon some concrete stairs at the Yorkshire College. The stairs were broken, but the cylinder was only dented, and there was no explosion. He had known one or two instances where such cylinders had been dropped without exploding, and he produced a photograph of a cylinder which was damaged when delivered, and which had a very deep dent, evidently from a blow, but the cylinder had not blown up.

In reply to the Coroner, Mr. Goodman said that there was very considerable difference in the cost of different makes of cylinders.

Herbert William Morley, a member of the firm of Messrs. Cole, Marchant and Morley, engineers, of Bradford, said that, acting under the instructions of the coroner, he took part in the inspection made by Mr. Goodman and Mr. Ellis. His report, which was read at length, agreed in its main findings and opinions with the evidence of Mr. Goodman.

Joseph Riley, of the firm of Messrs. Riley Brothers, magic-lantern outfitters, Cheapside, Bradford, said that the cylinder which burst with fatal result was purchased by his firm from the makers—the Projectile Company, Limited, of London—and delivered direct to the Manchester Oxygen Company to be filled. It came to his premises in January with five others, one of which was cut up by Mr. Goodman, and the other four of which were now at his premises. The cylinder which burst was the only one which had been used, the valves of the others being of an inconvenient shape. When the one which had broken was filled a fee was paid for it being tested. Including this fee, the cylinder had cost 4d. more than cylinders could be purchased for direct from the Manchester Oxygen Company, and this increased cost had led his firm to buy no more from the Projectile Company. The cylinder which had burst had been out four times.

After the Coroner had summed up, the jury found a verdict that the deceased met his death from the accidental bursting of a cylinder made of unsuitable metal, and they strongly recommended that in future these cylinders when sent out should be protected, either by cases or otherwise.

ARTIFICIAL WOOD.—Artificial wood suitable for making furniture, roof-covering, and insulating purposes, can be made according to a patent process, by burning magnesite together with waste vegetable or animal matter, such as wood, shavings, and chips, sawdust, cellulose, cotton, hair, or wool. The materials are first pulped with a solution of magnesium chloride in water, or a solution obtained by saturating hydrochloric acid with magnesite, with which mineral the pulp is then mixed, and moulded into any desired form. The articles are subsequently lixiviated preferably in running water. Suitable colouring matter can be added to the materials at will.

RAILWAY RATES IN THE CHEMICAL TRADE.—A correspondent writing to the *Liverpool Journal of Commerce* enquires upon what principle railway companies can justify the levying of practically the same tolls for the carriage of goods from the ports of the east coast to Lancashire towns and for the carriage of the same kind of goods from Widnes to the same places. Taking, for instance, the rate on chemicals between Goole and Bury and between Widnes and Bury. In the first place the distance is over 50 miles, and in the next case only 20 miles separates the two towns. It is scarcely credible that the rate for the 20 miles is no less than 9s. 6d. per ton, while the charges for the 50 miles only come to 10s. per ton. The same thing holds good in regard to other Lancashire towns, and affords a striking instance of the way in which the trade of this part of Lancashire is being retarded, and in some instances ruined by a scandalous system of rate discrimination. So keen is the German competition becoming in chemicals that the material from Hamburg can be placed on the Widnes market at less prices than those at which Lancashire manufacturers are willing to sell. With this alarming state of affairs it is hardly to be wondered that brokers and manufacturers are determined to renew their fight for a reduction of railway rates and charges.

Official Memoranda.

(From the Board of Trade Journal.)

CUSTOMS TARIFF OF THE BAHAMAS.

THE following is an abstract of the rates of Customs duty levied on imports into the Bahamas:—

ARTICLES.	RATE OF DUTY.	£	s.	d.
Alcohol	per gallon.	0	4	0
Candles, Sperm, &c... ..	per 100lbs	0	11	0
" Tallow	" "	0	6	0
Oils (Kerosene)	per gallon.	0	0	4
Linseed and other Oils, except essential oils	" "	0	0	9
Essential Oils	20 %	ad val.		
Naphtha, Olive, Sperm, and other Oils used for burning	per gallon.	0	1	0
Pitch, Resin, and Tar	per barrel.	0	1	3
Soap (Common)	per 100lbs.	0	5	0
Tallow	" "	0	3	0
Turpentine	per barrel.	0	1	3
" (Spirits of)	per gallon.	0	0	3

The following articles occur in the list of exemptions:—

Dyestuffs.	Scrap Zinc.
Divi-divi.	Lubricating Oil.
Manures.	Salt.
Salt Manufacturing Apparatus.	Caustic Soda.
Ice-making Apparatus.	Palm Oil.
Muriatic Acid.	Crude Petroleum.
Resin for Fixing Solder	Turpentine Distilling Boilers.

NICKEL PRODUCTION IN NEW CALEDONIA.

In 1890 over 22,600 tons were exported from this colony. The nickel is said to be of excellent quality and, as up to the present time the mines are worked from the surface, it is obtainable without undue expense. One franc a year per hectare is paid for permission to prospect, and a further three francs for concession of freehold; but the questions of royalties on output payable to the Government and of dead rent for unworked holdings are still unsettled.

PAPER MILLS IN INDIA.

According to a statement published by the Government of India there are nine paper mills—four in the Bombay Presidency, three in Bengal, one at Lucknow, and one at Gwalior. Of the nine, three are private concerns (in the Bombay Presidency); the others have an aggregate nominal capital of Rs. 492,200. The fibrous materials used for making paper are chiefly rags, babui, and moonj grasses, rice straw, jute and hemp cuttings, and old jute bags and cloth. The quality of the papers made has much improved in recent years, and they have a large and increasing sale. Most of the white and blue foolscap and much of the note paper and envelopes used in the Government offices is now obtained from the Indian mills. The total quantity of paper made in 1892 was about 26½ million lbs.; 10 years ago it was about 7¼ million lbs. The number of persons employed is 2,465.

There are a number of small paper works for the manufacture of what is known as country paper, scattered through most provinces, but of these petty industries no account was taken in the return.

THE PRODUCTION OF PETROLEUM IN RUSSIA.

The Russian *Novoe Vremya* devotes an article to the subject of petroleum production in Russia. It seeks to prove that this branch of industry has not progressed properly, that sufficient benefit is not reaped from the extraction of the product, the quantity of petroleum produced being in disproportion with the quantity of naphtha used. It shows that in four years the extraction of naphtha and the production of petroleum at Baku has been as follows:—

Extraction of naphtha, 1889, 205,000,000 pounds; 1890, 239,000,000 pounds; 1891, 288,000,000 pounds; and 1892, 298,000,000 pounds.

Production of petroleum, 1889, 61,100,000 pounds; 1890, 67,300,000 pounds; 1891, 74,000,000 pounds; and 1892, 78,700,000 pounds.

From these figures it appears that petroleum constituted in 1889, 29·8 per cent. of the quantity of naphtha extracted; in 1890, 28 per cent.; in 1891, 25·7 per cent.; and in 1892, 26·4 per cent.

With respect to the small proportion of petroleum extracted from the raw material, this results from the very nature of the Caucasian naphtha.

Experiments made 12 years ago proved that, whilst American naphtha gave 75 per cent. of material capable of use for purposes of lighting, Russian only yielded 30 per cent., at least, such as is used for petroleum lamps.

NEW METHOD OF CASTING STEEL INGOTS.

At the Nykroppa Iron Works, in Sweden, a method of consolidating steel ingots, by subjecting the freshly filled mold to pressure developed by centrifugal action, has been introduced by the manager, Mr. L. Sebenius, according to *Stahl und Eisen*. The apparatus consists of an upright shaft in the centre of a cylindrical casting pit, carrying a frame of four arms, to each of which is articulated a platform supporting four ingot molds. While the shaft is at rest the molds are upright, and are filled in the usual way, but when it is set in rapid rotation they fly up into the horizontal position, and a pressure in the direction of the length of the ingot is developed equal to thirty times that due to the column of liquid metal in the mold which drives the gases out and produces a perfectly solid casting. Uniformity of composition is also induced, as on account of the rapid cooling liquation is prevented. The process, which has now been in use about two years, has been applied to both the Bessemer converter and the open-hearth furnace. The ingots are free from external defects, and the loss by defective ends has been diminished 40 per cent., the metal being so compact as to bear rolling to finished sizes without the use of the cogging mill. The cost of the apparatus is about 2,000 dollars for a three ton, and 4,000 dollars for a ten-ton charge.

The circumference described by the bottom of the molds when spun up into the horizontal position is about 67 feet, corresponding with the working speed adopted of 125 revolutions to a velocity of nearly 10,000 feet per minute. The pressure on the mold taken at 30 times the depth of the ingots will be about 150 feet of iron, or from 500 to 600lbs. per square inch. In the form of the apparatus intended for smaller ingots the molds are arranged on an inclined position and radially to a central fixed vertical feeding tube upon a turntable, which is set in rotation after filling, or the latter operation may be performed while the table is actually in motion.

There is a later modification of the apparatus, in which the rotating table, being smaller in diameter than that previously adopted, can be driven at a higher speed up to 200 revolutions per minute. There are eight pivoted molds, each divided by internal walls, so as to give nine small ingots suitable for wire billets or thin sheets. By means of a central annular funnel lined with refractory material and provided with eight feeding spouts, or one for each group of molds, the whole number of 72 ingots is cast by a single pouring from the ladle, which contains from four to six tons of steel.

THE MINERAL PRODUCTION OF ONTARIO.

The *Toronto Monetary Times* gives the following particulars of the mineral production of the province of Ontario for the year ended the 31st October, 1892.

About 100 quarries have been worked, mainly for limestone or sandstone for building, mostly dimension stone and rubble, the remainder heads, sills, and coursing stone.

Two-thirds or more of the cement made in Ontario is the product of natural rock, but Portland cement was begun to be made in 1891, when 2,033 barrels were made, valued at 2·50 dols. per barrel. This year the natural rock output is 7,977 barrels greater than in 1891.

Brick making is a considerable industry in Ontario. There have been no less than 161 returns made to the bureau, of establishments producing in all 175,000,000 common bricks, of a value closely approaching 1,000,000 dollars. Pressed brick shows a greatly increased output over 1891 of nearly 40 per cent., namely, 20,342,000 plain, and 1,323,000 fancy; total value, 233,600 dollars. There is a new pressed brick company operating at Port Credit, using the red shale of the Medina formation. The value of pottery made in 1892 was 80,000 dollars.

Gypsum mining in the province shows only 72 per cent. of the output of 1891, being 3,870 tons, valued at 14,100 dollars; but the alabaster and plastic manufacture is considerably increased.

Owing to the low prices at which Florida phosphate of lime sold in European markets during 1892, the output of apatite in Ontario last year was extremely small. Only three mines were worked, and these to much less than full capacity, the total product being 2,381 tons, valued at 23,810 dollars. In the years 1881 to 1885 inclusive the shipments of Canadian phosphate to Great Britain and Germany were 15,000, 17,000, 18,000, 22,000, and 24,000 tons respectively.

Only one Ontario mica mine was worked last year. Its output was seven tons, valued at 1,500 dols.

According to a report made by the secretary of the Salt Association, Mr. John Ransford, the quantity of salt made in the province in twelve months ended with October last was 43,387 tons, valued at 162,700 dols.

On the subject of nickel, copper, and cobalt, the report has this to say: The quantity of ore raised last year was 72,349 tons, and the quantity smelted 61,974. Three of the four companies operating have erected Bessemerizing plants, employed to enrich the matte; but only a portion of the matte is treated by this process. The quantity of ordinary matte produced at all the furnaces was 6,278 tons, and of Bessemerized matte 1,880 tons. The estimated metal contents of these mattes and their value at the works is thus given:—Nickel, 2,082 tons, value 590,902 dols. Copper, 1,936 tons, value 232,135 dols. Cobalt, value 3,713 dols.

Legal Intelligence.

GLASGOW COURT OF SESSION.

FIRST DIVISION.

LIQUIDATOR OF DONALD'S CHLORINE CO., (LIMITED).

A company was formed for the purpose of acquiring the inventions and patents for the manufacture of chlorine acid, and for the recovery of the by-products, and other processes, for which Mr. Donald, of Saltcoats, held letters-patent. By agreement to sell, and the company agreed to purchase the letters-patent, and the exclusive benefit thereon, and to give a good title, and doing everything necessary to carry out the objects in the company, and granting all assignments that might be necessary for that purpose. The company is now in liquidation, and William Dunlop, C.A., Glasgow, the liquidator, applied to the Court to require Mr. Donald to transfer to him the letters-patent in question, and to grant assignments thereof. The liquidator averred that Mr. Donald declined to grant assignments; that in pursuance of the objects of the company the directors had expended the whole of the subscribed capital, £20,000, together with £11,000 of borrowed money, upon the construction of works for the manufacture of chlorine upon Mr. Donald's patented process; that these works were not quite complete, but could be completed now at a very trifling cost; that it was important in the interest of the creditors and shareholders that these works should be sold immediately as a whole, together with the absolute right to the patents, without which it would not be possible to obtain a full price for the undertaking of the company; and that Mr. Donald held the post of managing director of the company from its commencement to the date of liquidation, and was thus an officer of the company within the meaning of section 100 of the Companies Act, 1862. Mr. Donald, in answer, submitted that the patents in question were not part of the estate of the company at the commencement of the winding up; that the personal claim of the company was conditional and defeasible; that the company had not fulfilled the inherent condition of the agreement requiring *bona fide* manufacture and sale under the respondent's processes; that it was an essential right and interest of the respondent under the agreement to have his patents tried, and that if the company failed to make and maintain the works as a going concern the patents were to remain the property of the respondent; and that the proviso in the eleventh article of the agreement providing that the directors should have the right to sell the works as a going concern, with right to use the patents, did not put him in the same position as the directors.

The Lord Ordinary (Stormonth-Darling) required Mr. Donald to transfer to the liquidator the patents in question, and ordained him to execute assignments thereof, reserving to Mr. Donald any claim competent in the liquidation for the balance of £500 still due to him, Mr. Donald was found liable in expenses. He re-claimed, and counsel were heard, after which their lordships gave judgment, adhering to the Lord Ordinary's interlocutor, with additional expenses, holding that Mr. Donald was an officer of the company in the sense of section 100 of the Companies Act; that the policy of that section was a policy running through the various statutes relating to England and Scotland which gave facilities for the winding-up of estates of insolvent persons and companies, and that creditors were to be put into immediate possession of property to which the company had a substantial right, reserving if necessary all preferential claims which might affect it in

the liquidation. Their lordships were also of opinion that section 11 of the agreement did not contemplate a creditors' liquidation, but a voluntary liquidation.

HIGH COURT OF JUSTICE.

QUEEN'S BENCH DIVISION.

(Before Mr. Justice Wills and Mr. Justice Wright)

DEAKIN V. THE SALT UNION, LIMITED.

This case was an appeal from a decision of the Official Referee in favour of the defendants upon all points involved in the action. The plaintiff, Mr. J. B. Deakin, trading as Deakin Brothers, claimed to recover a large amount from the Salt Union. Towards the end of 1888 the Union was formed to acquire the undertakings of salt producers throughout the kingdom, and they purchased the business of the plaintiff, who possessed salt mines and had a factory, &c., in Liverpool, for £225,000. It was arranged, however, that the plaintiff should purchase salt from the Union and act as what was called a distributor, receiving a commission of 2½ per cent. It was a term of the contract that the plaintiff should receive a commission equal to the highest commission paid for the time being to any other distributor, dealer, broker, company, or person, and it was also agreed that the prices charged to the plaintiff should be as low as those charged to other distributors, &c. The plaintiffs' case was that the defendants in their dealings with Messrs. Nicholas Ashton and Co., also of Liverpool, whose business the Salt Union had acquired for £115,000, with the Runcorn Soap and Alkali Company, whose business they acquired for £32,000, and with a Mr. Holmes, had infringed this part of the contract. It appeared that the Union, in regard to "Ashton's Factory Filled Salt," the whole of which was shipped to America, allowed Messrs. Ashton 5 per cent., and Messrs. Thompson and Co., the American firm to whom it was shipped, another 5 per cent. Then they supplied the Runcorn Soap and Alkali Works and Mr. Holmes with salt at a lower price than they charged plaintiff. In regard to the case of Messrs. Ashton the defence was that, in reference to their "factory filled salt," they were not distributors, dealers, or brokers, but merely agents and intermediaries, and that being in a different position to plaintiffs the defendants were entitled to allow them and Messrs. Thompson the 5 per cent. As to the Runcorn Company, the salt, it was said, was supplied to them not to distribute, but for use in their works; and in the case of Holmes it was pointed out that there was a special contract which existed between him and one of the vendors when the Union took over the undertaking of the latter, and which they were bound to carry out.—Judgment was reserved.

THE MANCHESTER MILK SUPPLY.

THE City Analyst (Mr. C. Estcourt) has issued a report on the work of his department from the date of his appointment in 1873 to the present time. Mr. Estcourt makes some observations upon the difficulties he has met with, and in reporting upon various food stuffs and the methods of their adulteration he says, with regard to milk, that the Act of 1872 practically proved the death-blow to the adulteration of this important article. Adulteration, to the extent of 30 per cent. and even 40 per cent. of added water and skimming to the extent of 60 per cent. of fat, were common. This has been so dealt with by the Corporation that such gross adulteration is a thing of the past, or at any rate exceptional. By the method adopted of taking milk samples here, the vendors, when they are not the adulterators, are protected, as the inspectors take samples from the middlemen, even to the extent of going to the farms to ascertain the constituents of the original milk. "It is gratifying," he says in conclusion, "to observe that the action taken under the Food and Drugs Act has very perceptibly improved the milk supply of the city and district. This is not only a matter of great sanitary importance, but also of serious commercial interest as the following figures, based upon official information obtained in 1886 at the wish of Mr. Alderman Batty, then chairman of the Nuisance Committee, plainly show:—Gallons of milk annually received by the various railway companies in the district of Manchester, 6,252,620; gallons of milk brought in by carts, 2,000,000; gallons of milk from cows in district, 1,499,000; total gallons consumed in Manchester and neighbourhood, 9,751,620. The value of this quantity of milk taken at the average of 3½d. per quart is £568,647. The proportionate value for the city alone with a population of 373,000 is £310,997. Each per cent. of water added to the milk supply represents a loss to the ratepayers of £3,109. 15s. per annum. The saving, when calculated upon the present population, equals £4,100 saved to the city from every per cent. of adulteration prevented in the milk supply."

Paper Makers' Column.

VEGETABLE PARCHMENT.

ITS PROPERTIES, USES, AND MANUFACTURE.

(Specially contributed.)

VEGETABLE parchment has been known as a commercial product for very many years. It was first manufactured as a substitute for animal parchment for use in certain branches of industry, as it was found to fulfil all the necessary needs which the real parchment had hitherto supplied. It is besides a much cheaper product, and for many purposes a superior one. A steady and large demand exists for it at the present day, the consumption of it in this country being very large, but, strange as it may appear, only small quantities are produced in England, the larger part of this branch of the paper manufacture being confined to Germany.

The composition of vegetable parchment has been studied by many chemists. According to Girard it is essentially a hydro-cellulose. It is perfectly odourless, and when well-made is of uniform texture, resembling in appearance the skin of a bladder. It is translucent and possesses the unique properties of retaining its toughness when thoroughly wetted with water, and of regaining its original strength again when dried. It is practically grease proof, but although not altogether impervious to water, is known to effectually protect in a large measure, commercial goods in the wet or dry state from the influence of moist or dry air.

Its uses are very various. As a substitute for animal parchment, with which it is closely allied in reliability and hygroscopic properties, it has been used for many years in the bookbinding trade; and, also, for documents where durability is of paramount importance. It is not attacked by insects like animal parchment, and if properly made is quite as durable. Owing to its strength, durability, and great toughness when saturated with water, it is extensively used for covering vessels containing fruit and other preserves, syrups, &c., and in the preservation of polished brass and iron goods. In the provision trade very large quantities of the thinner kinds are consumed annually for wrapping up butter and other fats.

THE RAW PAPER.

The raw paper which is to be transformed into parchment must be chemically pure, that is to say free from lime, soda, chlorine, etc., and be as spongy as blotting paper. It must be prepared without the usual sizing (resin soap) or alum. Different raw materials are used for the various strengths of parchment papers, because the method of treatment also varies. When the raw stock is intended for thick parchment it should be soft and possess great absorbing power; whilst for medium and thin qualities, it should be harder and stronger so that it can be parchmented without fear of the web breaking or tearing.

It is advisable to use cotton rags exclusively, for thick papers having a weight of 75 to 150 grammes per square metre. These rags, after bleaching, are manipulated in the same way as for blotting papers. The treatment of the raw stock in the beating engine depends upon the thickness of the desired paper, and must be conducted on well-known lines. If thick papers are being made the pulp should be finely beaten, but for medium and thin weights the fibres must not be too short. Thick papers should also be made on the machine without the use of pressure, whilst thin and medium sorts should receive a little pressure in order to enable them to withstand the parchmentising process. A small quantity of linen rag stock can be mixed with cotton, in the preparation of the latter kinds, so as to obtain a stronger paper in endless rolls. In certain known kinds of thick parchments the addition of 30 or 50 per cent. of linen rags is necessary, viz., for osmose parchment, used extensively in the manufacture of sugar. Great strength and porosity are desired in this parchment-paper, because the sugar-syrup has to pass through it, and as is well known, linen fibres are parchmented less quickly than cotton fibres. It is, however, necessary to guard against preparing the pulp too hard, as good parchment paper must be parchmented through and through in order to allow the osmose of the liquid to go on properly and well. When preparing parchment for this purpose it is absolutely necessary to do so from clean stock, i.e., rags free from foreign substances. In no case should it be attempted to make raw paper from anything but well-sorted and clean rags, and to prepare these with water free from sedimentary matter such as coal-dust, sand, &c. The presence of alumina, chlorine, and more especially of particles of lime in such papers, is ruinous, for the obvious reason that the lime forms a compound with the sulphuric acid and produces faults in the parchment which, although they can only be found by the experienced worker, yet render the whole sheet entirely worthless. This is likewise the case with other impurities, such as coal-dust and sand. Indeed a high class, properly-made paper is the necessary foundation of a good parchment; otherwise the labour of the parchment-maker will be lost. There is much to be gained by the

different degrees of speed with which the raw paper is passed through the acid bath and by other practical details in the mixing of the acids, &c., but it is difficult to counteract, at this stage of the manufacture, a wrong treatment of the pulp or correct impurities in it.

It is the opinion of many makers that the best parchment papers were made 25 years ago or earlier. As at that time no great stress was laid upon their colour, the half stuff was allowed to thoroughly drain after bleaching before being reduced in the beater. The stock was then opened up, and made thoroughly absorptive; the raw paper made from it being of excellent quality, was easily and quickly parchmented. The parchment paper was clear and bright, with a yellowish appearance, and as strong as leather. To-day, however, the demand is for white parchment, and if this is to be made it is necessary to artificially colour or highly bleach the pulp. By colouring, the fibres are simply veiled, whilst by bleaching them to a high degree of whiteness pulp is not only lost but it is hardened, the pores of the individual fibres being partly filled up. The acid mixture used in the manufacture has, accordingly, no such unlimited power over the fibres as was formerly the case, for they were then chemically pure, open, and loose. In order, therefore, to make good parchment paper the raw stuff should be made so that the acid can thoroughly penetrate into the fibres and unite them together.

It is absolutely necessary to pay great attention to the purity of the acid, otherwise it will not parchmentise well. If it, or indeed any of the raw materials, contains dirt such as sand or particles of coal dust, the final product will get damaged in the course of manufacture. Washing with pure water in the beater and elsewhere, will aid the practical man a great deal in obtaining a perfect sheet of parchment. Every precaution should, therefore, be exercised in the sorting and boiling of the rags, and particularly in getting rid of any undissolved particles of lime or soda-lye by subsequent washing with pure, clean water.

THE SELECTION OF THE RAW MATERIAL.

For some years cellulose has been mixed with cotton rags in considerable quantities for the manufacture of the raw paper in the preparation of the thinner kinds of parchments; for weights varying from 30 to 45 grammes per square metre. Soda and sulphite cellulose are equally applicable for this purpose, especially in the bleached state. Such materials possess the desirable property of great toughness, purity, and power of absorption; and, also the power of resisting the parchmentising process without lessening the quality of the product. These thin papers are not allowed to absorb more of the acid than is absolutely necessary in preparing parchment in endless rolls, because the absorption increases the porosity in every case. This can be detected by holding a piece of the product towards the light, when it will be noticed that it is covered with numerous small holes. These render it practically useless for wrapping up butter and other fatty products, and for preserving commercial goods against water and moisture.

Wood pulp, i.e., ground wood, on the other hand, is quite unsuitable for making vegetable parchment. The sap and resinous bodies which it contains not only spoil the acid mixture, but produce yellowish specks on the surface of the parchment. These specks consist of a combination of the acid and the resin, &c., and parchment made with this material is found after washing to be porous because the acid has destroyed the wood pulp, preventing its passage to the fibres beneath. It is also an important fact, which must not be overlooked, that when the raw paper is surface-glazed, the acid is absorbed with difficulty. It is therefore found necessary not to calendar the web of raw paper too much when preparing it for thick parchments, and for the thinner kinds to avoid the calendaring altogether.

Bleached straw cellulose can also be used as a raw fibrous stock for parchment-making. It is found to give it a transparent appearance. Linen fibres, on the contrary, render the parchment opaque. Half-stuff, which has been quickly prepared, also produces the same effect. Great care must be exercised in the preparation of endless rolls of parchment from paper composed of these fibres.

Vegetable parchment for every kind of purpose is prepared as a general rule with sulphuric acid. Several other reagents, such for example as a concentrated solution of chloride of zinc, have been used, but good results are not so easily obtained with them as with sulphuric acid. Moreover, nearly all other reagents which have been proposed are more costly than this acid. The method of manufacture consists in simply passing a sheet of bibulous or unsized paper through a bath of vitriol, which transforms the fibres or cellulose composing the paper into a skin-like membrane resembling a bladder. Hence the origin of the name. So perfect has this manufacture become at the present time that some kinds of thick vegetable parchments, viz., those used in bookbinding, can scarcely be distinguished from animal parchment. It is *par excellence* grease and water proof; but, owing to the demand for such papers, several kinds of imitation vegetable parchments are manufactured now in vast quantities, which, although they differ very widely in many features from the real article, yet possess some properties in common with it, which enable them to replace it in many directions. Vegetable parchment, for example, does not fall to pieces when im-

mersed in water, but retains its tough pliable nature and regains its original strength when dried again. On the contrary, the so-called imitation parchment is easily torn when damped, and therefore for wrapping up butter, fish, &c., is not so suitable. Indeed, vegetable parchment is applicable to a hundred and one uses for which the imitation kind is wholly unsuitable.

(To be Continued.)

Correspondence.

* * We do not hold ourselves responsible for the opinions expressed by our correspondents.

ANSWERS TO CORRESPONDENTS.

W. E. F.—We trust you received them safely.

A. S.—It was sent as usual. There is no apparent cause for the delay at this end.

E. E. C. (AUSTRIA).—It is one and the same all the world over.

F. L. B.—Thanks for communication, we may have cause to refer to same shortly.

A. R. B.—We shall not require it.

S. C. Co.—Eight pence each, post free, from 38, Cursitor-street, E. C.

T. B. (N. Y).—It is equivalent to 3'05 dollars by I. P. O. O.

H. S.—It means more than you imagine.

N. H. J.—It is none too early. The sooner the better in such cases.

SALT SUBSIDENCES IN CHESHIRE.

AT a meeting of the Cheshire County Council last week, attention was called to a memorial which the Local Government Board had received from certain owners of houses and land, praying for the formation of a district under the Brine Pumping (Compensation for Subsidence) Act, 1891. The memorialists pointed out that by sections 3 and 4 of the Act, provision is made for owners of land of a rateable value not less than £2,000. to apply to the Local Government Board, alleging that subsidence of land belonging to them was caused by brine pumping operations, whereby loss was occasioned, and praying that a compensation district might be formed. They submitted that they had suffered injury by the processes indicated, and they went on to say:—"The effect of pumping operations in the Cheshire salt district is to cause subsidence of land and damage to dwelling-houses, buildings, and other property at considerable distances from the site of the pumping shafts or stations, and though the runs of brine are not definable it is an admitted fact that they all pass over one connected stratum of salt rock, though it is impossible to ascertain from what particular quarter the brine pumped up at any pumping station derives its salt. Subsidence from brine pumping operations is going on more or less throughout the whole of the Cheshire salt district, and the area of subsidence is increasing year by year. The quantity of brine raised in the proposed district during the year 1892, is estimated at 1,313 million gallons, equal to 1,313,000 tons of salt. Your memorialists therefore respectfully pray that a compensation district may be formed under the provisions of the herein-before recited Act; that such district be the Cheshire salt district; and that the district be called the Cheshire Salt Compensation District. Your memorialists also respectfully ask that your honourable Board will direct a local inquiry to be held by one of your inspectors pursuant to section 4 of the Act to inquire into the expediency of forming the said district and to define the boundaries to be assigned thereto, and as to any incidental matters in relation thereto as your Board may think fit." The names of owners of property of the aggregate rateable value of £4,519. were attached to the memorial.

Mr. Henry Bratt (Witton) moved, and Mr. Edward Milner (Northwich) seconded a resolution favouring the prayer of the memorialists. The total damage, Mr. Milner stated, according to the evidence given before Parliamentary Committees, was about £6,000 a year. A rate of 1 s. 5d. would pay that and the expense of working the Act, and that would be no appreciable tax on the trade. It was impossible to tell whence the injury arose, and therefore all should share in the burden.

The Duke of Westminster said the matter was one of very great complication, and it seemed to him that unless they went into every part of the case it would be unwise to pronounce an opinion thereon. He hoped the Council would not give an expression of opinion without full discussion.

Colonel France-Hayhurst (Middlewich) said he knew of an instance of damage caused by subsidence, although the land that subsided was two or three miles from Northwich on the one hand and from Winsford on the other, and it was clear to him that no one could tell with certainty which place was responsible. He hoped the Council would support the motion for laying the burden upon the whole district.

The resolution was carried unanimously.

ACCIDENTS TO CHIMNEY STACKS.

DURING the severe gale which prevailed on Saturday last, no less than three stacks were blown down, resulting in the loss of five lives. The most serious of the three was the collapse of the chimney at

THE COWAN HEAD PAPER MILLS,

near Kendal, which occurred about eleven o'clock on Saturday morning; the mills being the property of Messrs. James Cropper and Co.

When the gale was at its height, the chimney at this mill, which is 80 feet high, blew down, falling upon a workroom below with a great crash, and causing considerable excitement and consternation, which was increased when it became known that three young women who had been standing near the door of the room immediately before were missing. Assistance was at once rendered, and the debris was removed, but the young women were quite unrecognisable when recovered, their bodies being literally smashed.

No danger had been anticipated from the chimney, as it was apparently safe. Two years ago Messrs. Beesley, of Preston, made an examination of it at the request of the proprietors of the mills, to ascertain whether it was capable of carrying more weight. It was then 60 feet in height and perfectly sound, and Messrs. Beesley reported that with safety 30 feet could be added to the height, which would give additional drawing power. It was only raised 20 feet, however, and no appreciable difference was made in its strength. But at eleven o'clock on Saturday, as the three girls were standing near the entrance to one of the workrooms along with a man named Robert Parkinson, there was a loud report, and the huge chimney stack came to the ground with a crash. How Parkinson escaped is a miracle. It seems that the direction of the masonry falling in his direction was diverted by a stout beam over the door, and he remained unscathed. The damage to the building was great, and those in the neighbourhood were overwhelmed with dust, mortar, &c. In the afternoon an inquest was held by the district coroner into the circumstances attending the death of the three women, when evidence was given by Richard Savage, paper traveller, employed by the firm, who saw the accident through an office window; John Cunningham, a paper maker; and the managing director, Mr. John Bryce. The last-named could only attribute the accident to the violence of the gale, and the jury returned a verdict of accidental death.

At about the same hour on Saturday, the chimney at the dye-works of

MESSRS. T. LIVERSEDGE AND SONS,

Leeds-road, Huddersfield, fell with a loud crash, and fatally injured two men who were in the works. The chimney in question was originally twenty-five yards in height, and about five or six feet square at the foot, and was built of ordinary brick. In order to improve the draught a ten yards addition was made to the chimney, making it thirty-five, and it tapered towards the top. It was in a part of the premises known as the boiler-house and drying stove, in a three-storied building, the outer walls of which are of stone. The two boilers occupied the ground floor, and the two rooms above them were iron-constructed fireproof stoves for the drying of wool and other material.

During the morning the chimney had been seen to rock, though no one thought it would be blown down; but the wind had been gathering strength, and at length the chimney gave way at the point where it joined the roof of the upper room of the drying stove. Fortunately, in falling it went diagonally away from the dyehouse proper, in which a number of men were at work, otherwise the loss of life must have been comparatively great. The falling chimney crashed through and took with it the roof, and carried down with it the second floor, and the falling bricks were thrown across the street. The outer gable wall of the block running at right angles to the chimney was cut away diagonally almost as cleanly as if it had been done with a knife. Mr. Liversedge, the elder member of the firm, was passing at the moment down a narrow space between the stove building and another one, but the wind carried the falling debris away from him, and he sought shelter as soon as possible. Immediately information was conveyed to the police-office, and the chief-constable and a number of constables were in attendance. Dr. Mackenzie, who was visiting the neighbourhood at the time, was called to the spot. Messrs. Liversedge sent for Mr. G. Stead, a contractor, whose men, along with the firm's and those from Mr. Edwin Walker's manufactory close by, constituted a search party for the two men Ellis and Dawson, who were known to be missing. The men found Dawson about one o'clock and Ellis shortly before two o'clock, and both were dreadfully injured. Dawson had been doubled up in a curious fashion—head and one foot close together, and one foot all but cut off.

About ten o'clock, the same day, the stack at the dyeworks of

MESSRS. PINKERTON, OF BURY,

was blown down. * The fireman received a bad scalp wound, and was struck by bricks on the shoulder. A boy was also injured, and the window of the porch of Old Irwell Hall broken. Other damage was done to a number of house chimneys.

THE GAS SUPPLY OF LONDON AND LEEDS.

LONDON.

THE quality of the gas supplied to the City of London for the week ending November 11th, 1893, was good. According to the report of Mr. W. J. Dibdin, chemist and superintendent gas examiner to the London County Council, the tests made at the various testing stations showed no deficiencies in illuminating power. The following figures have been prepared from the report, and show the average composition of the gas calculated on the mean test:—

Company.	No. of districts tested.	Illuminating power (in stand. sperm candles).	Sulphur. Grains in 100 cb. ft.	Ammonia. Grains in 100 cb. ft.	Sulphuretted Hydrogen
		Mean average.	Mean average.	Mean average.	
Gas Light and Coke Co.	12	16'42	10'49	0'29	Nil.
South Metropolitan Gas Co.	6	16'41	13'25	0'43	Nil.
Commercial Gas Co.	2	16'40	8'65	0'6	Nil.

The standard gas supplied by these companies should have an illuminating power of 16 sperm candles, and contain not more than 22 grains of sulphur and 4 grains of ammonia per 100 cub. ft. of gas, on an average of three days, with a pressure of one inch between sunset and midnight, and six-tenths of an inch between midnight and sunset.

LEEDS.

According to the report of Mr. T. Fairley, F.I.C., gas examiner for Leeds, the total proportion of sulphur contained in the Leeds gas in the month ended November 9th, 1893, has averaged 14'72 grains per 100 cubic feet.

Place.	Date when Tests were made.		Total Sulphur.	Ammonia.	Carbonic Acid.	
	Oct. 1893.	Nov. 1893.			Weight.	Volume.
Meadow Lane....	19, 25, 31.	6.	10'57	12'22	48'90	0'06
New Wortley	20, 26.	1, 9.	18'88	1'49	73'35	0'02
York Street	18, 27.	2, 8.	11'19	0'59	65'20	0'08
Average at Works ..	..	..	14'72	5'60	57'05	0'07
Average at East Parade	..	..	13'01	0'91	57'05	0'07

During the month the average illuminating power of the Leeds gas tested at 17, East Parade, the tests being calculated to a uniform consumption of 5 feet per hour, and corrected for variations in temperature and pressure to a temperature of 60° Fahr. and a barometric pressure of 30 inches, has been in standard candles (burning 120 grains of sperm per hour):—Standard argand, 24 holes, 18'1; standard batwing, 18'9; Sugg's illuminating power meter, 18'2.

A MERCHANT'S FAILURE.—At the London Bankruptcy Court, last week, a receiving order was made against C. A. Dasnières, merchant, 16, Philpot-lane, London, and late of Liverpool, Antwerp, and Paris. The debtor gave up the Liverpool and Antwerp businesses about six months ago. The Paris business was carried on under an agreement with another person, and proceedings are pending in respect of a breach of agreement. The amount of the liabilities did not transpire.

THE RIVERS POLLUTION BILL.—At the last meeting of the Cheshire County Council, on the motion of Mr. T. W. Killick, vice-chairman, seconded by Mr. Charles Lister (Lymm), the Council expressed its approval of the idea, suggested by the Warwickshire County Council, that a circular be sent to all other County Councils in England and Wales, and to the County Councils Association, requesting them to take all possible steps with a view to urging on the Government by petitions or otherwise, the very great importance of passing the Rivers Pollution Prevention Bill during the present session.

RIVER POLLUTION AT DUKINFIELD.—At the Dukinfield Police Court last week, before Mr. W. J. Parkyn and Dr. Hopwood, the Mersey and Irwell Joint Committee summoned the Dukinfield Local Board for polluting the river Tame by causing liquid sewage matter to flow into it. Mr. W. H. Wilson, solicitor, from the office of the solicitor to the County Council, Preston, prosecuted.—Mr. J. A. Garforth, clerk to the Local Board, pleaded guilty to the two informations as laid by the prosecution. He, however, entered into a review of what the Board had done and were doing in the way of carrying out a sewage scheme, and in the end suggested that the Bench should inflict a fine of £1. and costs for a technical offence, and give the Board twelve months within which to carry out the requirements of the Joint Committee.—The course was agreed to by the prosecuting solicitor, and the Bench imposed a fine of £1. and £2. 10s. costs in each case.

Market Reports.

THE METAL MARKETS.

LONDON, WEDNESDAY.—Pig iron dull. Scotch warrants closed at 42s. 9d., Middlesbrough 34s. 7d. cash, and hematite 44s. 5d. Copper, steady: Chili bars, G.O.B.'s and G.M.B.'s, closed at £42. 6s. 3d. to £42. 13s. 9d. cash, and £42. 16s. 3d. to £43. 3s. 9d. three months. Tin, quiet: Straits closed at £75. 5s. to £75. 17s. 6d. cash, and £76. 2s. 6d. to £76. 10s. three months; Australian, £75. 17s.; English ingots, £79. 10s. to £80. Lead, quiet: Spanish, £19. 13s. 9d.; English, £19. 16s. to £19. 17s. 6d. Silesian spelter: ordinary, £17. 2s. 6d. Nickel, 1s. 7½d. Antimony, £37. 10s. Quicksilver: First hands, £6. 7s. 6d.; second hands, £6. 7s. Copper shares, firm: Cape, 1½ to 1½. Copiapo, 1¼ to 1¼. Libiola, 2¼ to 3. Mason and Barry, 1½ to 1½. Rio Tinto, 14½ to 14½. Tharsis, 4½ to 5½.

WOLVERHAMPTON, WEDNESDAY.—Trade was improved to-day as the direct result of strike termination. The removal of the restrictions under which iron and steel business has been labouring will immediately tend to a revival, and to-day buyers' operations had a decided tendency to greater freedom. Prices were easier, the result of cheaper fuel, but no quotable reductions are yet announced. Sheets, singles, £7.; doubles, £7. 2s. 6d.; bars, £5. 15s. to £7. 10s.; hoops, £6. 7s. 6d. free. Midland pigs, 45s. to 46s.; Staffordshire, 35s. to 60s.

GLASGOW, WEDNESDAY.—Market firm, with good business. Scotch done at 42s. 9½d., 42s. 10d., and 42s. 9d. cash, also at 42s. 11d. one month; closing with buyers at 42s. 9d. cash, sellers ask ½d. more. Middlesbrough closes with buyers at 34s. 7d. cash, sellers ask 34s. 8d. Cumberland hematite closes with buyers at 44s. 5d. cash, sellers ask 44s. 6d. Middlesbrough hematite closes with buyers at 43s. 3d. cash, sellers ask 43s. 4½d. Copper closes with buyers at £42. 5s. cash, sellers ask £42. 7s. 6d.

REPORT ON MANURE MATERIAL.

A fair amount of business has been doing during the week at prices which do not show any material alteration upon those last reported. The demand for high grade Florida phosphate rock, 75/80%, for the Continent, continues at 8½d., c.i.f. to ports between Havre and Hamburg, and at 9d. c.i.f. Mediterranean and Baltic, 1894 shipment. United Kingdom buyers have, most of them, covered their requirements over all 1894, and the value cannot be quoted over 8½d., c.i.f. to good United Kingdom ports. The position of Peace River and South Carolina River Rocks is unchanged. There is good inquiry for River Plate bones, and for handy cargoes on the way £4. 15s. could, no doubt, be obtained. For November-December shipment £4. 12s. 6d. is probably full value. Crushed Calcutta bones, for shipment, may be had at £4. 15s., ex quay Liverpool. Shippers of crushed Kurrachees are not quoting meantime. Bombay bone meal is quoted £4. 17s. 6d., ex quay Liverpool, for shipment. Grinding bones are inquired for, and would fetch £4 5s. to £4. 10s., according to quality and condition. Nitrate of soda is quiet in all positions. Spot quotation is 9s. to 9s. 1½d., according to quality. Due cargoes are worth barely 8s. 10½d. per cwt., and October-November shipments not over 9s. 1½d. Nothing special to report in miscellaneous material.

MISCELLANEOUS CHEMICAL MARKET.

Business generally remains somewhat quiet, but with the settlement of the coal dispute and the consequent deliveries of fuel, things should quickly improve. Bleaching powder and caustic soda scarce, and in brisk demand. Bleach: £8. 10s., hardwoods, f.o.b.; £8. 5s., softwoods, rails. For caustic soda, current prices are: f.o.b. Tyne, 77%, £12.; f.o.b. Liverpool, 74%, £11. 10s.; 70%, £10. 15s.; 60%, £9. 15s.; cream, 60%, £9. 10s., 10-ton lots and upwards. Soda ash quiet, but price is well maintained. Soda crystals move more freely: we quote £2. 17s. 6d. bags, and £3. casks, rails, makers' works. Saltcake still depressed, and continues to be offered at tempting prices, but there appear to be no buyers. Chlorate of potash is in better request at 8d. to 8½d.; soda firm at 9½d. Nitrate of soda is only selling in small quantity at 9s. 3d. to 9s. 4½d. per cwt. Sulphate of copper sells slowly at £16, f.o.b. Acetates generally are firmer—lime is strong for spot delivery, but there is not much tendency on the part of buyers to go far forward at present prices; we quote brown £7, grey £11. Acetic acids are without change in price. Acetate of soda in better demand, and slightly higher figures are being obtained. Sugar of lead unchanged. White powdered arsenic steady, and in moderate request at £13. 5s., Garston. Vitriol and muriatic acids find a ready market at former prices. Sulphocyanides move more freely, and prices are firm. Barium quoted 5¼d. Ammonium 7¼d. Oxalic acid still

difficult to move. Carbolic acids are quoted at higher rates, but there is no large amount of business being done.

LIVERPOOL OIL AND COLOUR MARKET.

WEDNESDAY.

OILS.—Palm oil is quietly steady, with some sales. Lagos is worth £24. 10s. per ton transit. Benin and Cameroon move slowly. Olive is steady, sellers holding for higher prices, so the market is steady. Linseed, although still lower in price, moves but slowly, the demand being limited. Quotations are 21s. 3d. to 22s. cwt. Castor oil has been fairly active at good prices, but to-day is slightly easier for good seconds Calcutta at 2½d. to 2¾d. First pressure French 2½d. lb. Tallow is firm, but practically stagnant as far as business is concerned. Resin has not much more to show, higher grades being dearer. Values generally, however, are unaltered despite the lull. Spirits of turpentine have varied from 22s. 3d. to 22s. 6d. cwt., and are to-day steadily held for the advance. Petroleum is in moderate request, with American 4½d. to 5¼d. and Russian refined 3¾d. per gallon.

COLOURS are steady without alteration in prices. Ochres: Oxfordshire, common, £10., medium, £12., best, £15.; Derbyshire, common, 40s.; medium, 50s., best, 60s.; Welsh, best, 70s., seconds, 50s., and common, 18s.; Irish, Devonshire, 40s. to 45s.; French, J.C., 55s. to 60s.; M.C., 65s. to 67s. 6d. Umber: Turkish quiet; Devonshire, 50s. to 55s. White lead, red lead, and oxide of zinc unchanged. Venetian red, £6. 10s. to £10. Cobalt: Prepared oxide, 9s. 9d.; black, 9s.; blue, 6s. Zaffres: No. 1, 3s. 6d.; No. 2, 2s. 6d. Oxide of iron: Common, £6.; medium, £10.; finest, £20. Zinc oxide, £23. to £25.

WEST OF SCOTLAND CHEMICALS.

GLASGOW, TUESDAY.

Since writing last week sulphate of ammonia has further, and very markedly, improved its position, especially as regards the spot market. By the close of the week £13. 10s. was paid, and while this is nominally the prompt price to-day there are doubts in buyers' minds whether it is still to be readily done at that, some looking for a higher flight still. Forward to March delivery has also advanced, and latest reported business stands likewise at £13. 10s. for that.

In the market for general chemicals there is a further improvement as to demand, and bleaching powder is quoted higher. Caustic also has continued in fair inquiry. The settlement of the English coal struggle is welcomed here for various reasons amongst chemical manufacturers, one of these being the prospect of a stoppage of Scotch coal despatches southwards, with an easement of fuel costs for the home manufacturer.

Paraffins and mineral oils continue satisfactorily active, and season's deliveries of illuminants maintain a full bulk.

Chief prices current are:—Soda crystals £2. 10s. nett, Tyne; soda ash £3. 17s. 6d. nett, Tyne; white alkali 48/52° £4. 10s. to £5. nett, Tyne; alum in lump £5. nett, Glasgow; caustic soda, white, 74° £11. 10s., 70/72° £10. 15s., 60/62° £9. 15s., and cream 60/62° £9. 10s., all nett, Liverpool; bleaching powder £8. to £8. 5s. nett, Tyne; salicake, 22s. 6d.; borax, English refined, £30., and boracic acid, £37. 10s. nett, Glasgow; bicarbonate of soda, 5-cwt. casks, £6. 15s., and 1 cwt. casks £7. less 2½%, Liverpool; bichromate of potash, 4½d. nett, for Scotch and English deliveries (for export, 4¼d. nett, f.o.b. Glasgow); bichromate of soda, 3¾d. nett, for Scotch and English deliveries (for export, 3½d. nett, f.o.b. Glasgow); chlorate of potash, 8d. less 5%, Liverpool; nitrate of soda, 9s. 4½d.; sulphate of ammonia, £13. 10s. prompt, f.o.b. Leith; salammniac, first and second white, £37. and £35. less 2½% any port; sulphate of copper, £15. 15s. less 5% Liverpool; paraffin scale, hard and soft, 1¾d. per lb.; paraffin wax 120° semi-refined 2¾d.; paraffin spirit (naphtha) 4½d. per gallon; paraffin oil, burning, standard No. 1 grade, 5d. to 5¼d. per gallon at works, for Scotch buyers (English sales ½d. to ¾d. lower); ditto (lubricating) 865° £4. 7s. 6d. to £4. 10s., 885° £4. to £5. 10s., and 890/895° £5. to £6. Week's imports of raw sugar at Greenock were 24,890 bags.

TYNE CHEMICAL REPORT.

TUESDAY.

Chemicals are firm, with a steady business. Caustic in fair demand at £10. for 70%, £11. 10s. for 76%/77%. Bleach, £8. 5s. per ton, and sulphur scarce, at £4. 5s. per ton. Other products unaltered.

Bleaching powder, softs, £8. 5s. per ton, nett; hards, £8. 10s. per ton, nett; caustic soda, 76/77%, £11. 10s. per ton, nett; 70%, £10. per ton, nett; recovered sulphur, 2 cwt. bags, £4. 7s. 6d. per ton, nett; soda ash, 48%, £3. 15s. per ton, 52%, £4. 2s. 6d. per ton, 56%, £4. 10s. per ton, nett; alkali, 36%, £3. per ton, nett; white alkali, 48%, £4. 10s. per ton, 50%, £4. 15s. per ton, 52%, £5. per ton, nett; hyposulphite of soda, in 5-7 cwt. casks, £7. per ton, ditto, in 1 cwt. kegs, £7. 15s. per ton, nett; silicate of soda, 75° Tw., £2. 15s. per ton, 100° Tw., £3. per ton, 140° Tw., £3. 17s. 6d. per ton, nett; soda crystals, in casks, £2. 10s.

per ton gross weight, in 2 cwt. bags, £2. 10s. per ton nett weight; chlorate of potash, 8½d. per lb. less 6%; pearl hardening, £3. per ton, nett; pure white sulphate of alumina, £4. 2s. 6d. per ton, nett; blanc fixe, £7. 10s. per ton, nett; chloride of barium, £7. 10s. per ton, nett; carbonate of alumina, £28. 15s. per ton, nett; aluminate of soda, £33. 15s. per ton, nett; in 5 ton lots, £28. 10s. per ton, nett; hydrate of barium, £10. per ton, nett.

South Durham salt is steady, at 9s. 6d. per ton f.o.b., Tees.

Coals: Since the settlement of the Midland strike trade has been irregular and weaker, the outside demand from the strike district becoming gradually less. Prices generally have a downward tendency, and to-day's current quotations are:—Best Northumbrian steam, 14s. 6d. to 15s. per ton; second qualities, 13s. to 13s. 6d. per ton; small steam, 6s. 6d. to 7s. per ton; bunker coals, for prompt, 10s. 6d. per ton; gas coals, good demand, at 11s. 6d. to 12s. per ton; coke quiet, at 15s. 6d. per ton.

TAR AND AMMONIA PRODUCTS.

Benzol is reported firm, and the prices quoted are 1s. 6d. for 90's, and 1s. 7½d. for 50/90's. This was only to be expected, as the carbonising benzol had brought prices down it is only natural that when these works have been stopped by 16 weeks' coal strike that prices would rise again. This is what has actually happened, and so soon as these carbonising works get into full swing again we may see a further decline in prices, that is to say of 90's benzol or pure benzene. Solvent naphtha is in very good demand at enhanced prices, and the same may be said of anthracene. It is difficult to forecast the future of pitch, but it is very probable that the present season will be a good one, still there is an element of uncertainty in the situation.

The sulphate of ammonia market continues very strong, and spot parcels are still limited: the price has consequently further advanced, and has now reached £13. 10s. at all the ports. This sudden advance may check the demand somewhat at the moment, and it is therefore problematical whether extreme prices will be touched this month. Buyers are hoping that the end of the coal strike will make sulphate more plentiful, but we think this is an untenable position, as most gas works have been kept going at their normal production, and this is the bulk of the make. Spring delivery is not so much inquired for, but there is next to nothing offered.

THE COPPER MARKET.

Messrs. Harrington and Co., in their report, dated Liverpool, November 17th, 1893, state:—

The Chili Charters for the past fortnight not being to hand are estimated at 800 tons, making the total since 31st December last 18,350 tons, against 19,450 tons same time last year. Exchange, 13½d.

During the past fortnight the market for G.O.B.'s and G.M.B.'s has been quiet and featureless, prices fluctuating between £42. 10s. cash and £43. three months, and £44. 2s. 6d. and £44. 12s. 6d. respectively.

The total stocks in Liverpool, Swansea, London, and Havre are 44,291 tons, against 43,990 tons on the 31st ult., showing an increase of 301 tons for the fortnight. The stocks include about 3,300 tons of copper sold, but not yet delivered to smelters. The visible supply for the fortnight is 48,188 tons, against 48,001 tons on the 31st ult., showing an increase of 187 tons. The stock of English G.M.B.'s in Liverpool has decreased to 4 tons.

The sales of furnace material comprise:—At Liverpool: 600 tons Chili copper ore, 12 per cent, ex ship, at 7s; 720 tons Chili copper ore, 14 per cent., ex ship, at 7s. 1½d. (both lots ex Sarmiento); 35 tons Spanish precipitate, at 8s. 1½d.; and 117 tons Argentiferous Chili regulus, on private terms. At Swansea: 900 tons Chili ore, ex Mary Moore, 15 per cent., at 7s. 4½d.; and 400 tons Cape regulus, to arrive, at 8s. 3d. per unit.

HULL PAINT, OIL, AND COLOUR REPORT.

TUESDAY.

OILS.—The position of business is much relieved by the termination of the strike, still it is yet too early for any substantial improvement, which cannot be looked for until a few weeks have passed, some think that nothing of importance will be done until the new year. The exports leave much to be desired and compare badly with same time a year ago. The position being linseed oil shipments, 744 cwt., against 1,339 cwt.; and cotton seed oil, 2,503 cwt., against 6,202 cwt. The import of tallow also compares unfavourably with the same time. The present market quotations are, linseed oil quiet, spot 19s. 6d. per cwt., naked; month, 19s. 3d.; forward, first four months, 19s. 1½d. Cotton-seed oil, spot quiet, naked, 19s. 10½d.; month, 19s. 9d.; forward December-April, 19s. 1½d.; crude spot, 18s. 3d.; 17s. 3d., December-April. Refined rape oil quiet, in casks, 23s. 6d. First pressure castor oil, 2½d. per lb. Coast cod oil firm, £17. 10s. to £19. per ton. Herring oil, £16. 10s. Sod oil scarce, and in good demand, £15. to

£17 per ton. Resin from £4. per ton. Resin oil, crude, £7. per ton. Anti-friction greases, from £6. per ton. Engine and cylinder, from 1s. to 2s. per gallon.

CAKES.—Linseed cakes steady, 95% pure, £8. 15s.; ordinary, £7. 5s. to £7. 10s.; Russians, £8. 10s. Cotton cakes: strong spot, and in short supply, best makes, £5. 2s. 6d. to £5. 7s. 6d.; December-March, £4. 17s. 6d., with very few buyers at the latter. Rape cakes, for manure purposes, etc.: Black Sea, £4. 5s.; East India, £4. 15s. per ton.

PAINTS.—This trade continues neglected, the exports of painters' colours and chemicals each show a decrease compared with same time a year ago. Oxide of zinc £22 10s. per ton. White and red leads unchanged. Oxide of iron, dry, £9 to £18 per ton; venetian red, dry, £6. to £10. per ton; lime blue, 16s. per cwt. Ochres, from 60s. per ton, ex warehouse. Ready mixed paints, in 1, 2, 4, 7 and 14lb tins, from £26. per ton; common black varnish, barrels free, £5. 10s. per ton; oak varnish from 6s. per gallon.

New Companies.

British White Lead Company, Limited. CAPITAL, £30,000. in shares of £5 each. This company has been formed to carry on the business of white lead manufacturers, chemists, drysalts, oil and colourmen, etc. The subscribers to the memorandum of association are: S. B. Heward, 96, Ashley Gardens, S.W., gentleman; F. Willan, Thornhill Park, Hants, gentleman; J. A. Ewen, 11, Bunhill-row, London, E.C., merchant; A. W. Collier, 36, Pepys-road, South New Cross, London, S.E., accountant; H. O. White, Homehurst, North Bank, London, N.W., gentleman; O. Hamilton, 54, Dover road, Northfleet, Kent, chemical engineer; W. Salkeld, 13, Aldermanbury Avenue, London, E.C., merchant.

Flagstaff Company, Limited.—CAPITAL, £240,000. in shares of £1. each. This company has been formed to acquire the company called Flagstaff Limited—now in liquidation—and to carry on the mines and mining property situated in the county of Salt Lake City, U.S.A., and other property. The subscribers to the memorandum of association are:—F. Hopkins, 10, Hazelmere-road, London, N.W., gentleman; C. W. Stidstone, 23, Moorgate-street, London, E.C., manufacturing stationer; R. S. Archbold, 9, New Broad-street, London, E.C., merchant; G. T. Verney, 9, New Broad-street, London, E.C., gentleman; A. H. Verney, Dashwood House, London, E.C., gentleman; H. Davison, 71, Tavistock Crescent, London, clerk; A. H. Singleton, 3, Hanover Park, London, S.E., gentleman.

London Briquette Company, Limited.—CAPITAL, £500. in shares of £1. each. This company has been formed to carry on the business of manufacturers of artificial fuel.

The Patent List.

This list is compiled from Official sources in the Manchester Technical Laboratory, under the immediate supervision of George E. Davis and Alfred R. Davis, who report professionally upon the value of Chemical Patents.

APPLICATIONS FOR ENGLISH LETTERS PATENT.

Improvements in Reverberatory Furnaces. J. Mitchell and J. B. Bennett. 21,014. November 6.
Treatment of Sewage. T. Twynam. 21,023. November 6.
Utilising Sewage Sludge. T. Twynam. 21,024. November 6.
Improvements in Blow Pipes. H. Stone. 21,030. November 6.
Preventing Boiler Incrustation. A. L. Boulton. 21,058. November 6.
Improved Antiseptic Compound. T. Stubbs and Sir W. G. McCall. 21,074. November 6.

Improvements in Separating Solid from Liquid Matter, more especially relating to the Treatment of Slimes, Finely-Divided Ore, Precipitates, and Sewage. C. Raleigh. 21,082. November 6.
Producing Insoluble Azo-Colours on Fibre. O. Imray. 21,087. November 6.
Improvements in Gas Producers. C. D. Abel. 21,089. November 6.
Improvements in the Manufacture of Coal Briquettes. R. Fegan. 21,118. November 7.
Producing Illuminating Gas, Benzol, Etc., from Liquid Hydrocarbons, and Apparatus Therefor. W. Young. 21,123. November 7.
Artificial Fuel. W. G. Solly. 21,187. November 7.
System of Purifying and Deodorising Sewage by Precipitation. A. Goldthorp. 21,213. November 8.
Preparation of Cyanogen Compounds. J. J. Hood and A. G. Salamon. 21,239. November 8.
Production of Cyanides. J. J. Hood and A. G. Salamon. 21,240. November 8.
Disinfecting Fluid. L. Ascott. 21,261. November 8.
Metallic Alloys. E. B. Woodford. 21,269. November 8.
Improvements in the Method and Apparatus for Manufacturing Sulphuric Acid. F. J. Falding. 21,283. November 9.
Improvements in the Manufacture of Portland Cement, Pigments, etc., and Apparatus therefor. A. Patrick. 21,292. November 9.
Process and Apparatus for treating Rhea Fibre. H. H. Boyle. 21,313. November 9.
Ice-Making Machinery. A. W. Morrice. 21,326. November 9.
Manufacture of Wooden Barrels. J. Polke. 21,333. November 9.
Refrigerating Apparatus. F. N. Mackay. 21,340. November 9.
Apparatus for the Manufacture of Bleaching Powder, etc. J. M. Milnes and A. Milnes. 21,354. November 9.
Utilising Bricks used in the Deacon Chlorine Process and Recovering Copper therefrom. J. R. Wyld and D. Williams. 21,412. November 10.
Manufacture of Anhydro-orthosulphamine-Benzoinic Acid or its Salts from Commercial Saccharin. A. R. Ling. 21,417. November 10.
Primary Batteries. W. H. Longsdorf. 21,420. November 10.
Manufacture of Sulphocyanides and Recovery of Bye-products. J. Brock, A. E. Hetherington, F. Harter, and J. Raschen. 21,451. November 10.
Improvements in Varnishing in Colours. J. Perl. 21,455. November 10.
Oil Shale Distilling Retorts. J. Gray. 21,485. November 11.
Improvements in Electrolytic Cells. L. Mond and R. L. Mond. 21,529. November 11.
Improvements in Tanning. S. L. Evans. 21,542. November 11.
Explosives. K. C. Edmunds. 21,543. November 11.
Improvements in Glass Furnaces. W. B. Fitch. 21,545. November 11.

GERMAN PATENTS.

Specially abstracted by Dr. H. Zerener, civil engineer, the Patent Office, 20 Eichendorffstrasse, Berlin, N., for the Chemical Trade Journal. Dr. Zerener is willing to at once protest against the grant of such new Patents as may collide with the interests of subscribers.

75 R. 7,850. Preparing Alkaline Silicates. J. A. Reich, Vienna.
75 R. 7,917. " Addition to patent No. R. 7,850.
75 W. 9,247. Concentrating Sulphuric Acid in Leaden Vessels. Dr. W. Walters, Borowitschi, Russia.
12 F. 6,890. Iodine Derivatives of the Succinimides and Substituted Succinimide. Meister Lucius and Brüning, Höchst a/M.
75 D. 5,951. Extracting Ammonia, Chlorine, and Hydrochloric Acid from Ammonium Chloride. Addition to patent No. 40,685.
12 F. 6,570. Preparation of Isochinoline Derivatives. Dr. P. Fritsch, Marburg i/Hessen.
12 H. 12,479. Bismuth-Phenolates. Dr. F. von Heyden, Radebeul, Dresden.
75 S. 7,435. Preparation of Chlorine. A. R. Scott, Cartyne.
12 G. 5,475. Cyanogen-Compounds. J. D. Gilmer, Glasgow.
75 B. 14,985. Apparatus for Decomposing Alkaline Chlorides. M. Benze, Vienna.

Gazette Notices.

BANKRUPTCY ACTS, 1883 and 1890.

Adjudications.

DASNIERES, CHARLES ALBERT (trading as Charles Dasnières, also late carrying on business with another as Charles Dasnières), Philpot-lane, E.C., and Rutland Villas, Bexley Heath, late Liverpool and Antwerp, and late carrying on business with E. M. F. L. Desbrière, Paris, as Charles Dasnières, merchants.
HALLETT, J., late High-street, Sutton, now Cavendish-road, Chatfield-road, Croydon, oil and colour merchant.
TURPIN, J. R., Addingham, Yorks., dealer in oils and paints.

IMPORTS OF CHEMICAL PRODUCTS

AT

THE PRINCIPAL PORTS OF THE UNITED KINGDOM.

LONDON.

Week ending November 11th.

Acetic Acid—
Holland, 100 pkgs. Beresford & Co.
Acetone—
Holland, 1 pkge. Beresford & Co.

Alkali—

France, 330 c. Arnati & Harrison

Alum—

Belgium, 38 pkgs. R. W. Greeff & Co.
Holland, 201 Ohlenschlager Brs.

Ammonium Sulphate—

Germany, 96 pkgs. Tough & Henderson

Antimony—

Portugal, 50 t. J. Bamber
Melbourne, 57 W. B. Marcus
France, 20 Smith, Sundius & Co.

Arsenic—

Germany, 20 pkgs. Petri Brs.

Asbestos—

France, £86 Mory & Co.

Barytes—

Belgium, 34 cks. J. L. Lyon & Co.
Germany, 111 W. Harrison & Co.

Belgium,	56cks.	Magee, Taylor & Co.
"	46	W. Harrison & Co.
"	24	R. Bew
"	1	P. & O. S. N. Co.
"	2	S. Ward & Co.
Camphor—		
Japan,	115 tbs.	L. & I. D. Jt. Co.
"	115	71 pkgs. R. Warner & Co.
Hong Kong,	50	A. Hughes
"	150	S. Figgis & Co.
"	1,512 cs.	Union L. Co., Ltd.
"	100	T. Merry & Son
Japan,	83 tbs.	Lewis & Peat
Germany,	3 cs.	L. & I. D. Jt. Co.
Caoutchouc—		
C America,	63 c.	Prop. Bull Wf.
S "	63	"
Germany,	3	F. Huth & Co.
"	143	Wallace Bros.
P. E. Africa,	30	Lewis & Peat
Zanzibar,	268	L. & I. D. Jt. Co.
Mauritius,	33	"
E. Indies,	23	"
Germany,	20	"
"	3	Hoare, Wilson & Co.
"	23	Prop. Bull Wf.
"	1	Clarke & Smith
Zanzibar,	28	Anderson, Weber & Smith
Madagascar,	336	Procter Bros.
P. E. Africa,	1	J. Owen
"	12	S. Figgis & Co.
Chili,	3	F. Huth & Co.
France,	3	Prop. Hay's Wf.
Zanzibar,	87	Clarke & Smith
Do,	14	Forbes, Forbes & Co.
"	46	L. & I. D. Jt. Co.
P. E. Africa,	181	"
"	38	Forbes, Forbes & Co.
Malunga,	3	Brookes & Green
E. Indies,	18	Prop. Bull Wf.
Germany,	12	Anderson, Weber & Smith
Mauritius,	27	Blyth Green & Co.
"	31	Petry & Pasteur
Castor Oil—		
France,	10 brls.	Beresford & Co.
Belgium,	24	"
Caustic Potash—		
France,	100 c.	F. W. Berk & Co.
Chemicals (otherwise undescribed)		
U. States,	20 pkgs.	S. Lambert & Co.
Germany,	59	T. H. Lee
"	36	A. & M. Zimmermann
"	4	H. Lambert
"	6	Phillips & Graves
"	2	L. & I. D. Jt. Co.
"	1	W. Burton & Sons
Cream of Tartar—		
Holland,	115 pkgs.	Middleton & Co.
U. States,	26	B. & F. Wf. Co., Ltd.
Spain,	2	"
France,	27	"
"	5	C. Christopherson & Co.
"	10	G. F. Gerhardt
"	5	F. C. Devon & Co.
"	5	M. Ashby, Ltd.
Spain,	10	W. C. Bacon & Co.
"	4	"
Dextrine—		
Holland,	20 pkgs.	J. Graves
"	10	H. Lorenz
Germany,	100	M. D. Co.
"	10	Herrmann, Keller & Co.
"	10	Ohlenschläger Bros.
"	38	Pronk, Davis & Co.
Dyestuffs—		
Aniline	5 pkgs.	R. Baelz & Co.
Anthracene	209 pkgs.	Burt, Boulton, & Co.
Argols	22 pkgs.	"
Cochineal	6 pkgs.	G. S. Bruce
Cambrics,	48	Johnson, Hicks & Co.
Cutch	250 pkgs.	Ralli Bros
U. States,	909	Leach & Co.
Rangoon,	100	W. H. Cole & Co.
Extracts	20 pkgs.	Darling Bros.
Germany,	50	Fisher, King, & Co.
U. States,	100	E. H. Cousins & Co.

Belgium,	30 pkgs.	T. H. Lee
Austria,	100	A. J. Humphrey
"	5	J. Graves
France,	250	L. J. Levinstein & Sons
Gambier		
E. Indies,	975 pkgs	S. Barrow & Bro., Ltd.
"	451	Beresford & Co.
"	884	Brinkmann & Co.
"	1,503	W. Schutte
"	424	Rolls & Son
"	1,704	L. & I. D. Jt. Co.
Indigo		
E. Indies,	51 chts.	Forbes, Forbes, & Co.
"	17	Wallace Bros.
Austria,	3	F. Theodore & Co.
Logwood		
B Honduras,	140 L.	A. Hagan
Myrabolams		
E Indies,	2,000 pkgs.	W. France & Co., Ltd.
"	324	L. & I. D. Jt. Co.
"	680	Baxter & Hoare
Naphthalene		
Germany,	31 pkgs.	Fleming's Oil Co.
Oreochella		
Zanzibar,	110 pkgs.	Prop. Bull Wf.
Saffron		
Spain,	1 pkgs.	Richardson, Spence, & Co.
Turmeric		
Japan,	142 pkgs.	C. A. & H. Nichols
Dyestuffs (otherwise undescribed)		
Austria,	10 pkgs.	Beresford & Co.
Germany,	10	Becker & Ulrich
France,	45	Prop. Hay's Wf.
Farina—		
Germany,	56 pkgs.	Dunlop Bros. & Co.
"	751	C. F. Webster
"	50	M. D. Co.
"	50	Hernu, Peron, & Co.
Holland,	50	J. Barber & Co.
Flux Skimmings—		
U. States,	74 pkgs.	Hughes, Chemery & Co.
Gamboge—		
E. Indies,	2 pkgs.	L. & I. D. Jt. Co.
Glucose—		
Germany,	300 pkgs.	300 c. Trier, Meyer, & Co.
"	13	105 c. M. D. Co.
"	20	159 Prop. Chmbln's Wf.
U. States,	125	275 L. Norman & Co., Ltd.
"	5	30 Linton, Hubbard & Co.
"	50	300 Deering & Robottom
France,	100	100 J. Barber & Co.
"	300	300 Trier, Meyer, & Co.
"	200	200 L. Norman & Co., Ltd.
Holland,	40	30 Prop. Sun Wf.
Guano—		
Germany,	2 t.	Anglo-Cont G. Wks.
Lead Acetate—		
Germany,	15 pkgs.	F. Boehm
Holland,	11	Beresford & Co.
Manure—		
France,	10 t.	J. Burnett & Son
U. States,	13	S. E. Rly. Co.
Germany,	5	F. W. Berk & Co., Ltd.
Holland,	2	H. & E. Albert
Methyl Alcohol—		
Belgium,	23 pkgs.	Stein Bros.
Mica—		
E. Indies,	£320	W. M. Smith & Sons
Ochre—		
Holland,	4 cs.	Phillips & Graves
France,	84 cks.	W. Harrison & Co.
Oxalic Acid—		
Holland,	9 pkgs.	J. Owen
Paraffin Wax—		
U. States,	3,685 brls.	J. H. Usmar & Co.
"	499	H. Hill & Sons
Phosphate Rock—		
Belgium,	146 t.	Lawes Manure Co.

France,	108 t.	A. Hunter & Co.
"	130	Anglo Cont. G. Wks.
Pitch—		
N. Russia,	200 brls	J. Hunt & Son
"	514	Fellows Morton & Co.
Belgium,	7 cks	Poth, Hille, & Co.
Germany,	250	Linck, Moeller, & Co.
France,	150	H. Hill & Sons
"	150	Fellows, Morton, & Co.
Sweden,	52	Watt & Co.
Plumbago—		
Ceylon,	32 brls.	R. G. Hall & Co.
Germany,	151 cs.	Prop. Scott's Wf.
Holland,	55 cks.	T. H. Lee & B. Gallaway
Potash—		
Canada,	59 c.	S. Ward & Co.
France,	75	Petri Bros.
Belgium,	20 pkgs.	T. Palmer
Potassium Carbonate—		
France,	40 c.	Spies Bros. & Co.
Holland,	300	"
Potassium Chloride—		
Germany,	470 pkgs.	A. Hunter & Co.
Potassium Sulphate—		
Germany,	500 pkgs.	A. Hunter & Co.
France,	9	Mead, Son, & Co.
"	50	Petri Bros.
Pyrites—		
Spain,	1,375 t.	C. L. Vasey & Co.
Rosin—		
U. States,	200 brls.	H. Hill & Sons
Saltpetre—		
Germany,	4 cks.	Petri Bros.
"	70	T. Merry & Son
"	114	P. Hecker & Co.
Sodium Acetate—		
France,	15 pkgs.	H. Lorenz
Sodium Carbonate—		
France,	½ c.	H. Johnson & Sons
Starch—		
Belgium,	753 pkgs.	Prop. Scott's Wf.
Holland,	130	J. Barber & Co.
"	245	Barrett, Tagant & Co.
Belgium,	3	E. & T. Pink
"	90	T. H. Lee
"	49	A. B. Curtis & Co.
Holland,	440	C. J. Capes & Co.
Germany,	1,340	Horne & Co.
France,	6	Duttrille, Solomons & Co.
Stearine—		
U. States,	2 bls.	S. Guiterman & Co.
"	125 bgs.	H. Hill & Sons
Belgium,	317	"
France,	80	Walbaum & Tosetti
Talc—		
Austria,	£40	F. Boehm
France,	80	Stobbs & Co.
Ultramarine—		
Belgium,	4 pkgs.	W. Harrison & Co.
Holland,	28	Hernu, Peron & Co.
Germany,	27	G. Steinhoff Sons & Co.
Holland,	20	Thames S. T. & L. Co. Ltd.
Varnish—		
Belgium,	7 pkgs.	Stobbs, Wilson & Co.
U. States,	40	Beck & Pollitzer
"	20	Taylor Bros.
"	3	Allan Bros. & Co.
Germany,	29	L. & I. D. Jt. Co.
France,	15	C. Atkins & Nisbet
Verdigris—		
France,	2 pkgs.	B. & F. Wf. Co., Ltd.
Vermillion—		
Hong Kong,	1 pkgs.	R. Warner & Co.
White Lead—		
Holland,	20 cks.	G. F. Clifford
Germany,	23	Burrell & Co.
"	45	M. Ashby, Ltd.
France,	10	J. Watt & Son
Belgium,	8 pkgs.	Hammond & Co.

Germany,	20 cks.	G. F. Clifford
"	21	Randall Bros.
"	3	F. V. Pryor
"	36	S. H. Willoughby
Holland,	23	Spies Bros & Co.
"	27	Burrell & Co.
Zinc Oxide—		
Holland,	125 brls.	M. Ashby, Ltd.
Germany,	50	"
"	5 cks.	Beresford & Co.
"	25	F. V. Pryor

LIVERPOOL.

Week ending November 9th.

Acetic Acid—		
Hamburg,	2 brls.	"
Antimony—		
Antofagasta,	85 bgs	Brownells, Lewis & Co.
Barium Carbonate—		
In transit,	75 bgs.	"
Barytes—		
Rotterdam,	60 cks.	"
Bremen,	21	"
Boric Acid—		
Leghorn,	12 cks.	Pickford & Co.
"	66	"
Borax—		
Leghorn,	64 cks.	"
Mollendo,	100 bgs.	F. Huth & Co.
Camphor—		
Hamburg,	2 cs.	"
Caoutchouc—		
Havre,	15 cks.	Cunard S. S. Co., Ltd.
Castor Oil—		
Leghorn,	5 cs.	"
Calcutta,	100	Ralli Bros.
"	243	D. Sassoon & Co.
Chloroform and Ammonia—		
In transit,	3 cs.	Cunard S. S. Co., Ltd.
Colours—		
Hamburg,	8 cs. 21 cks.	"
Rotterdam,	10	"
Cream of Tartar—		
Barcelona,	5 cks.	"
Rotterdam,	2	"
Dyestuffs—		
Algarobilla		
Coquimbo,	21 bgs.	Schintz & Co.
Argols		
Oporto,	92 cks.	German Bank of London
Cochineal		
Teneriffe,	12 bgs.	Widow Duranty & Son
Las Palmas,	10	"
Extracts		
Ghent,	30 cks.	"
Nantes,	575 brls.	Oak Extract Co.
New York,	3	W. C. Chapman
Bordeaux,	62 cks	"
Halifax, N.S.,	80	Boutcher, Bacon & Co.
Fustic		
Cartagena,	7,082 ps	Widow Duranty & Son
Colon,	2,666	D. Midgeley & Son
"	3,013	Edwards Bros.
"	1,801	A. Dobell & Co.
Savannah,	4,619 bgs.	G. H. Muller & Co.
Indigo		
Akassa,	4 bxs.	Royal Niger Co.
Teneriffe,	"	Schatz & Bolander
Madder		
Rotterdam,	2 cks.	"
Larnaca,	2 bls.	"
Shumac		
Palermo,	50 bgs.	J. Glynn & Son
"	100	J. Kitchin, Ltd.
"	1,597	356 bls.
Barcelona,	150 bgs.	"
Valonia		
Syra,	587 bgs.	250½ t.
Patras,	100	A. Xepolitides & Co.

Glucose — New York, 250 brls.	
Guano — B. Ayres, 2,339 bgs.	Williamson, Milligan
Ochre — Alicante, 500 bgs. 8 brls. Rotterdam, 24 Pt. Royal, 636	
Oxalic Acid — Rotterdam, 16 cks.	
Paint — New York, 10 cks.	Lightbound Aspinall
Hamburg, 10 cks.	
Paraffin Scale — Philadelphia, 200 brls. Baltimore, 100	
Pitch — Hamburg, 58 cks. Bordeaux, 89	R. J. Francis & Co.
" 26	
Potash Salts — Hamburg, 986 bgs	
Pumice Stone — Messina, 29 cks. 14 cs. Teneriffe, 92 brls.	F. H. Damenez
Pyrites — Huelva, 1,300 t.	Matheson & Co.
Rosin — Baltimore, 162 brls.	
Salt — Hamburg, 1 cs.	
Saltpetre — Hamburg, 26 brls. 25 kgs. Calcutta, 1,183 bgs.	
Soap — Leghorn, 25 bxs.	Brown Bros. & Co.
" 1,270	Weaver & Sterry
Naples, 15 cs.	Paul Behrends
Soda — Rotterdam, 3 brls.	
Sodium Silicate — Rotterdam, 2 cks.	
Starch — Boston, 600 sks. Rotterdam, 150 cs.	
Sulphur — Catania, 100 t. 67 brls. 33 cks. 100 bgs.	
Tallow — Zarate, 233 cks. 22 pps.	J. Nelson & Sons Ltd.
B. Ayres, 21 pps.	W. B. Dickinson
Philadelphia, 200 tcs.	
Boston, 37 bds.	Stolterfoht, Sons & Co.
" 3 63 brls.	
Tartar — Bordeaux, 1 ck.	
Tartaric Acid — Rotterdam, 3 cks. Sache & Klemm	
" 45	
Ultramarine — Hamburg, 18 cks. Rotterdam, 7 29 cs.	
Verdigris — Bordeaux, 3 cks.	
Waste Salt — Hamburg, 1,016 bgs 70 t.	
White Lead — Rotterdam, 24 cks.	
Zinc Oxide — Rotterdam, 75 cks.	
Zinc Skimmings — New York, 76 bgs	Zinc Chemical Co.

HULL.

Week ending November 11th.

Acid — Bari, 59 cks.	Wilson, Sons, & Co., Ltd.
Acetic Acid — Antwerp, 20 pks.	Bailey & Leetham
Alum — Hamburg, 1 ck.	Bailey & Leetham
Rotterdam, 36	Hutchinson & Son
Barytes — Antwerp, 21 cks.	Bailey & Leetham

Rotterdam, 139 cks.	Hutchinson & Son
" 4 bgs.	G. Lawson & Sons
Bremen, 46 cks.	Tudor & Sons
103 bgs.	
Camphor — Hamburg, 4 cks.	Wilson, Sons, & Co., Ltd.
Caoutchouc — Stockholm, 1 cs.	Wilson, Sons, & Co., Ltd.
Castor Oil — Leghorn, 32 cs. 6 pks Genoa, 30	Wilson, Sons, & Co., Ltd.
Hamburg, 2	
Chemicals (otherwise undescribed) Danzig, 20 cks	W. & C. L. Ringrose
Antwerp, 300 pks.	Wilson, Sons, & Co., Ltd.
Bremen, 1 kg.	Veltmann & Co.
Hamburg, 7 cs.	C. M. Lofthouse & Co.
Dunkirk, 88 pks	Wilson, Sons, & Co., Ltd.
China Clay — Hamburg, 41 cks.	Reckitt & Sons
Colours — Flushing, 37 pkgs.	G. Lawson & Sons
" 2 cs. 1 ck.	Brasch & Rothenstein
Rotterdam, 49 pks.	W. & C. L. Ringrose
" 1 12 10	G. Lawson & Sons
Antwerp, 3	Bailey & Leetham
Stettin, 16	Wilson, Sons, & Co., Ltd.
Amsterdam, 5	W. & C. L. Ringrose
Hamburg, 12	
Danzig, 11	Wilson, Sons, & Co., Ltd.
" 32	W. & C. L. Ringrose
Rotterdam, 2 3 28	Hutchinson & Son
Bremen, 2	Hanger Wat- son, & Harris
Rotterdam, 3	
Cream of Tartar — Rotterdam, 1 ck.	Hutchinson & Son

Dextrine — Stettin, 125 bgs.	Wilson, Sons, & Co., Ltd.
Dyestuffs — Alizarine Rotterdam, 28 pks. 8 cks. W. & C. L. Ringrose	
" 5 brls.	G. Lawson & Sons
Divi Divi Hamburg, 456 bgs.	Wilson, Sons, & Co., Ltd.
Extracts Boston, 350 brls.	Wilson, Sons, & Co., Ltd.
New York, 100	
Logwood Hamburg, 100 bls.	Wilson, Sons, & Co., Ltd.
Madder Marseilles, 4 cks.	Wilson, Sons, & Co., Ltd.
Shumac Palermo, 450 bgs.	Wilson, Sons, & Co., Ltd.
" 2,110	
Trieste, 15 bls.	"
Valonia Trieste, 69 pks	Wilson, Sons, & Co., Ltd.
Farina — Stettin, 200 bgs.	Wilson, Sons, & Co., Ltd.
" 100	
Ghent, 280 cs.	
Harlingen, 55	
Glucose — Bremen, 100 bgs.	
Lime — New York, 506 bgs.	Wilson, Sons, & Co., Ltd.
Nitro Toluol — Rotterdam, 1 ck.	Hutchinson & Son

Ochre — Marseilles, 63 cks.	
Phosphate — Dunkirk, 185 t.	Hammond, Emes, & Co.
Pitch — Antwerp, 10 cks.	H. F. Pudsey
Plumbago — Genoa, 22 brls.	
Pumice Stone — Leghorn, 2 brls. 10 bls. 35 cs. 40 bgs. Messina, 38 pks.	Wilson, Sons, & Co., Ltd.
" 98 bgs.	
Trieste, 1 cs.	"
Rosin — New York, 100 brls.	Wilson, Sons, & Co., Ltd.
Saltpetre — Hamburg, 3 cks.	
Sodium Nitrate — Rotterdam, 4 cks. Hamburg, 84 kgs.	Wilson, Sons, & Co., Ltd.
Starch — Antwerp, 200 cs.	J. R. & A. Mayfield
Amsterdam, 80 bxs.	W. & C. L. Ringrose
Antwerp, 40 cs.	Wilson, Sons, & Co., Ltd.
Bremen, 1,515	Veltmann & Co.
Sulphur — Catania, 1,732 pks	Wilson, Sons, & Co., Ltd.
60 bgs.	Ganderton Bros.
Tallow — New York, 225 tcs.	Wilson, Sons, & Co., Ltd.
St. Petersburg, 4 cks.	
Tar — Gamla Carleby, 2 brls.	J. Good & Sons
Tartaric Acid — Rotterdam, 2 cks.	Hutchinson & Son
" 1	G. Lawson & Sons
Turpentine — Trieste, 1 brl. 1 cht.	Wilson, Sons, & Co., Ltd.
Ultramarine — Rotterdam, 10 cs.	Sissons Bros. & Co.
" 2 cks.	Hutchinson & Son
Varnish — New York, 6 brls.	Wilson Sons, & Co., Ltd.
Waste Salt — Hamburg, 42 t. 203 bgs.	
White Lead — Antwerp, 55 cks.	Bailey & Leetham
Rotterdam, 25	Hutchinson & Son

GLASGOW.

Week ending November 16th.

Acetate of Lime — New York, 391 bgs.	
Acetone — Rotterdam, 1 tin	J. Rankine & Son
Alum — Rotterdam, 17 cks.	J. Rankine & Son
Alumina Sulphate — Rotterdam, 60 cks.	J. Rankine & Son
Arachide Oil — Rotterdam, 4 cks.	J. Rankine & Son
Asbestos — Montreal, 674 bgs.	
Barium Sulphate — Antwerp, 150 bgs. 28 cks.	
Barytes — Rotterdam, 89 cks.	J. Rankine & Son
Castor Oil — Antwerp, 169 cks.	
Colours — Rotterdam, 22 cks. 5 cs.	J. Rankine & Son
Antwerp, 4	
Rotterdam, 38 pkgs.	
Amsterdam, 2	

TYNE.

Week ending November 11th.

Acid — Hamburg, 1 cs.	Tyne S. S.
Alum Earth — Hamburg, 51 cks.	Tyne S. S.
Barytes — Rotterdam, 238 bgs.	Tyne S. S.
Farina — Hamburg, 40 bgs.	Tyne S. S.
Pyrites — Huelva, 1,445 t.	
Salt — Hamburg, 1,518 bgs.	Tyne S. S.
Saltpetre — Hamburg, 13 cks.	Tyne S. S.
Starch — Rotterdam, 90 cs.	Tyne S. S.
Antwerp, 80	"
Sulphur — Pomaron, 883 t.	Mason & J.
Tartaric Acid — Rotterdam, 4 cks.	Tyne S. S.

GOOLE.

Week ending November 11th.

Alkali — Hamburg, 13 cks.	
Calais, 5	

Antimony —	
Boulogne,	1 ck.
Alum —	
Rotterdam,	1 brl.
Barytes —	
Antwerp,	100 bgs.
Caoutchouc —	
Boulogne,	1 bl.
Chemicals (otherwise undescribed)	
Stockholm,	19 cks.
Rotterdam,	6
Dyestuffs —	
Alizarine	
Rotterdam,	111 pkgs.
Indigo	
Rotterdam,	10 chts.

Logwood	
Jamaica,	850 t.
Madder	
Rouen,	1 ck.
Dyestuffs (otherwise undescribed)	
Boulogne,	12 cks. 23 cs. 15 pkgs.
Farina —	
Hamburg,	3,436 bgs.
Glucose —	
Hamburg,	20 bgs. 32 cks.
Lead Acetate —	
Hamburg,	19 cks.
Naphthol —	
Rotterdam,	5 brls.

Potash —	
Rotterdam,	40 cks.
Antwerp,	2 brls.
Saltpetre —	
Hamburg,	20 cks.
Rotterdam,	370 bgs.
Size —	
Boulogne,	1 pkge.
Soda —	
Rotterdam,	11 brls.
Waste Salt —	
Hamburg,	173 cks. 1,007 bgs. 372 t.
Zinc Oxide —	
Rotterdam,	2 brls.
Antwerp,	23

GRIMSBY.

Week ending November 11th.

Aluminium —	
Antwerp,	3 cks.
Chemicals (otherwise undescribed)	
Rotterdam,	7 cks.
Hamburg,	6
Copper Sulphate —	
Dieppe,	2 cks.
Farina —	
Hamburg,	100 bgs.
Size —	
Antwerp,	6 pkgs. 6 cs.
Zinc Ashes —	
Antwerp,	26 cks.

EXPORTS OF CHEMICAL PRODUCTS

OF

THE PRINCIPAL PORTS OF THE UNITED KINGDOM.**LONDON.**

Week ending November 15th

Acetic Acid —	
Wellington,	18 c.
Alkali —	
Demerara,	19 c.
Alum —	
Cape Town,	19 c.
Alum Cake —	
Melbourne,	5 t. 10 c.
Aluminous Cake —	
Rotterdam,	150 t. 6 c.
Copenhagen,	102 t.
Ammonia (Liquid) —	
Melbourne,	3 c.
Yokohama,	3
Ammonia (Liquid) and Acids —	
Champerico,	8 cs.
Ammonium Carbonate —	
B. Ayres,	12 c.
Stettin,	1 t. 4
Paris,	3 14
St. Petersburg,	2 10
Yokohama,	8
Ammonium Chloride —	
Riga,	1 t. 4 c.
Ghent,	4 cks.
Samsoun,	2 t.
Ammonium Nitrate —	
Algoa Bay,	12 rns.
Ammonium Sulphate —	
Berlice,	18 t.
Bremerhaven,	50
Bordeaux,	6
Demerara,	52 7 c.
Hamburg,	51 2
Arsenic —	
Marseilles,	11 c.
Brisbane,	19
Sydney,	11
Bisulphite of Lime —	
Calcutta,	2 t. 16 c.
Bleaching Powder —	
Melbourne,	5 t. 10 c.
Boric Acid —	
Melbourne,	4 cks.
Brisbane,	5 c.
Borax —	
Auckland,	1 cs.
Oporto,	5 c.
Algoa Bay,	2 t. 15 kgs. 84
Gibraltar,	10 15
Melbourne,	2 5 120
Veile,	1 2 49
Sydney,	11 16
Carbolic Acid —	
Melbourne,	15 pkgs 2 t. 20 dms.
Rotterdam,	96 cks.
Hamburg,	80
Treport,	100 cs.
Cologne,	7 t. 2 c.
Yokohama,	100 cks.
Higo,	50 100
Carbon Bisulphide —	
M. Video,	2 t.
Caustic Potash —	
Sydney,	1 t. 2 c.
Brisbane,	6
Caustic Soda —	
Calcutta,	13 t. 19 c.
Algoa Bay,	4 12

Sydney,	7 t. 14 c.
Brisbane,	18
Natal,	12
E. London,	1 10
Philadelphia,	15
B. Ayres,	13 18
Chemicals (otherwise undescribed)	
Melbourne,	24 pkgs.
Valencia,	1 t. 1 c.
Auckland,	20 cks.
Hamburg,	7 cs. 4
Adelaide,	7 cs. 7 pkgs.
Spain,	4
Singapore,	6 d-rs.
Algoa Bay,	12 cs. 20 cks.
Chloride of Lime —	
Algoa Bay,	10 kgs.
Brisbane,	2 t.
Citric Acid —	
Hamburg,	16 c.
Genoa,	11
Odessa,	3
Colombo,	2
Shanghai,	2 1 ck.
Sydney,	10
Algoa Bay,	10 2 kgs.
Brisbane,	5
Coal Products —	
Alizarine	
Bombay,	50 kgs. 30 cks.
Boston,	10
Aniline	
Melbourne,	2 cs.
New York,	23 cks.
Boulogne,	1
Aniline Dyes	
Kobe,	10 cs.
Calais,	40 cks.
Coal Tar Dyes	
Boston,	5 pkgs.
Naphtha	
Auckland,	20 dms.
Melbourne,	25
Naphthaline	
Hamburg,	314 bgs. 13 cks.
Antwerp,	2
Pitch	
St. Malo,	225 t.
Philadelphia,	495 cks.
New York,	500
Sables d'Olonne,	275
Trinidad,	10 brls.
Boston,	465
Rotterdam,	195
Tar	
Trinidad,	10 brls.
Cologne,	2 cks.
Boston,	100
Toluol	
Hamburg,	10 puns.
Copperas —	
Rotterdam,	4 cks.
Copper Sulphate —	
Pt. Elizabeth,	8 c.
Hobart,	2 t.
Stettin,	1 17
Colombo,	1 9
Canterbury,	1
Melbourne,	5
Cream of Tartar —	
Auckland,	10 c.
Sydney,	1 t. 1
Melbourne,	3 10
Hobart,	6

Disinfectants —	
Algoa Bay,	2 cs.
Antigua,	2 cks.
Hamburg,	16
Calcutta,	3 brls. 10
Gibraltar,	3 pkgs. 25
Melbourne,	50 dms. 10 cs. 56
Adelaide,	4 9
Shanghai,	3 11
Sydney,	30 59
Disinfectants and Ammonia (Liquid) —	
Algoa Bay,	9 pkgs.
Flowers of Sulphur —	
Pt. Elizabeth,	2 t. 4 c.
Algoa Bay,	2 5
Guano —	
Ghent,	50 t. 11 c.
Hydrofluoric Acid —	
E. London,	5 c.
Hypophosphites —	
Rotterdam,	20 cs.
Manure —	
Barbadoes,	50 t. 15 c.
Lisbon,	15 6
Bordeaux,	40 6
Lisbon,	132 17
Trinidad,	2 7
Martinique,	395 13
Berlice,	27 285
Demerara,	50 4 667
Jersey,	10 40
Riga,	50 13 145
Jamaica,	96 6 720
Cape Town,	534 3,041
Oxalic Acid —	
Odessa,	5 c.
Yokohama,	10 15
Phosphoric Acid —	
Demerara,	10 t.
Phosphorus —	
Lisbon,	2 cs.
Melbourne,	10 101
Potash —	
Hong Kong,	4 c.
Yokohama,	1 t. 10
Hiogo,	10 14
Potash Crystals —	
Toronto,	1 t. 11 c.
Naples,	1 cs. 12
Potassium Bicarbonate —	
Melbourne,	5 c.
Potassium Bichromate —	
Pt. Elizabeth,	1 kg.
Potassium Chlorate —	
Lisbon,	5 c.
Genoa,	15
Sydney,	3 t.
Melbourne,	5 19
Potassium Cyanide —	
Algoa Bay,	4 c.
Shanghai,	9
Melbourne,	5 47
Potassium Iodide —	
Calcutta,	1 c.
Potassium Prussiate —	
Brisbane,	2 c.
New York,	122 cks.
St. Petersburg,	50 2,000
Sydney,	5 20
Saltpetre —	
Oporto,	3 t. 13 c.
Lisbon,	1 2 23
Pernambuco,	2 17 64

Pt. Elizabeth,	9 c.
Wellington,	11
Melbourne,	1 t.
Algoa Bay,	5
E. London,	9
Mosel Bay,	5
Sheep Dip —	
Rosario,	10 cks.
E. London,	250 dms.
B. Ayres,	33 t. 12 c.
Napier,	175 cs.
Soda Crystals —	
Constantinople,	8 t.
Aden,	1
Zanzibar,	10 c.
Hong Kong,	2 9
Algoa Bay,	11 3
E. London,	10 2
Sodium Bicarbonate —	
Auckland,	2 t.
Trinidad,	12 c.
E. London,	3 10
Sodium Carbonate —	
Cape Town,	10 c.
Sodium Tartrate —	
Oporto,	3 c.
Sulphur —	
Pernambuco,	25 kgs.
Sulphuric Acid —	
Natal,	13 c.
Superphosphate —	
Harlingen,	20 t. 3 c.
Tartaric Acid —	
Sydney,	1 t.
Brisbane,	5 c.
Melbourne,	2 10 247

LIVERPOOL.

Week ending November 15th.

Acetic Acid —	
Vera Cruz,	19 c. 2 q.
Alum —	
Rio Grande,	4 c. 3 q.
Montreal,	45 t. 15 2
Lisbon,	5 3
Quebec,	9 7
Bourgas,	2 18
Petrolia, Ont.,	9 6
London,	1 19
Santos,	1 2
Ibrail,	5 30
Alumina Sulphate —	
Piræus,	1 t. 16 c.
Aluminoferic —	
Montreal,	30 t. 8 c.
Ammonium Carbonate —	
Rotterdam,	10 c.
Riga,	15 25
Ammonium Chloride —	
Barcelona,	1 t. 1 c.
Alexandria,	5 15
Galatz,	6 1 q.
Beirut,	1 10
Riga,	5 10
Ammonium Sulphate —	
Montreal,	5 t. 1 c. 1 q.
"	25 cks.
Barcelona,	10 1
Las Palmas,	53 10
Valencia,	34 14
Alicante,	10 5
Samarang,	307 12 1 3,930

Asbestos—

Hamburg,	1 cs.	
Bleaching Powder—		
Boston,	408 cks.	
Corunna,	6	
Montreal,	17	
New York,	185	75 brls.
Callao,	9	
Oporto,	2	
Rio de Janeiro,		
Rouen,	30	20 cs.
Seville,	45	

Boracic Acid—

Boston,	3 t.	5 c.	2 q.	£106
Yokohama,	2			75
Rotterdam,	19	2		39
Borax—				
Halifax,	2 t.	5 c.		£59
Sydney,	10			14
Hamburg,	16			30
Rotterdam,	14	3		23
Ibrail,	17	2		25
Riga,	5	6		154

Carbolic Acid—

New York,	1 t.			£54
Yokohama,	2	10 c.		117
Rotterdam,	10	1	1 q.	560
Venice,	10	3		23
Marseilles,	11	1		30
Caustic Soda—				
Bahia,	50 dms.			
Baltimore,	100	110 bxs.		
Bombay,	26			
Boston,	100			
Calcutta,	84			
Ceara,	36			
Corfu,	40			
Hong Kong,	45			
New York,	100			
Penang,	50			
Pernambuco,	50			
Volo,	2			
Barcelona,	49			
Curacao,	10			
M. Video,	100			
Oporto,	30			
Santos,	15			

Chemicals (otherwise undescribed)

Trinidad,	2 c.	1 q.	£10
Oporto,	3		5
Alexandria, 6 cs.	3 t.		132
Stockholm,	3		5
Lagos,	1		6
Venice,	1		35
Hamburg,	10		17
China Clay—			
Barcelona,	40 t.		
Boston,	1,077		
B. Ayres,	20		
Lisbon,	3	7 c.	
San Francisco,	10	5	
Coal Products—			
Alizarine Oil			
Vera Cruz,	10 cks.		
Aniline Oil			
Genoa,	14 dms	10 tins	
Philadelphia,	10		
Aniline Salts			
Philadelphia,	9 cs.		
New York,	10		
Cresosote Oil			
Bocas,	33 brls		

Copperas—

Montreal,	4 t.	11 c.	£8
Santos,	1	17	4
Copper Sulphate—			
Seville,	15 t.	3 c.	1 q. £238
Stockholm,	2	3	32
Genoa,	3	19	56
Naples,	9	12	133
Ancona,	2	19	42
Rouen,	9	18	149
Lisbon,	10	1	150
Smyrna,	18	2	14
Penang,	1		17
Barcelona,	107	3	1,714

Cream of Tartar—

Vera Cruz,	1 c.		£5
Disinfectants—			
Hamburg,	4 t.	19 c.	£232
Farina—			
Valleyfield, P.Q.,	6 cks.		
Flowers of Sulphur—			
Natal,	5 c.		£3
Guano—			
Malaga,	3 t.	10 c.	£631
Gypsum—			
Montreal,	5 t.		£23
Hydrochl ric Acid—			
Rangoon,	7 cks.		£6
Iron Sulphate—			
Iquique,	10 t.		£18

Lime—

Brass,	2 t.	4 c.	£5
Landana,	5		5
Old Calabar,	3	8	8
Bonny,	4 cks.		
Limestone—			
New York,	10 cs.		
Magnesia—			
Montreal,	4 cs.		
Magnesium Sulphate—			
Bocas,	1 cs.		
Tampico,	80 kgs.		
Manure—			
Valencia,	50 t.	11 c.	£107
Marseilles,	50	2	3 q. 264
Metallic Sodium—			
Rotterdam,	1 t.	11 c.	2 q. £350
Paint—			
Havre,	5 tins	4 brls.	
Hong Kong,	240 dms		
Jaffa,		6 cks.	
Lisbon,	70		14 cs.
New York,		8 kgs.	3 pkgs.
Rangoon,	5		
San Francisco,	55		
Sulina,		8 cks.	
Cameroon,	10		
C. C. Castle,	20		5 kgs.
Coquimbo,		4	
Gaboon,		5	
Havana,		1	
Mollendo,		4	
Nassau,		7	
Wellington,	22		84 kgs.

Painters' Colours—

Akassa,	109 kgs.		
Alexandria,		22 dms.	
Antwerp,	18		
Bakana,		15	1 brl.
Bathurst,		2 cks	112
Belize,		10	44
B. Ayres,		2	11
Candia,		2	2
Cape Town,	7 cks.	80	64
Ceara,			2
Coquimbo,		6 cs.	27
Corfu,			14
La Guayra,			12
Leghorn,			3
Magog, P.Q.,		2	3
Malta,			16 dms
Montreal,			3 cs.
New York,			6
Old Calabar,			10
Para,			15
Parahyba,			6
Pt. Elizabeth,			20
Porto Cabello,			10
Rotterdam,			6
St. John's, N F.,			235
Santander,			2
Shanghai,			20
Valparaiso,			100
Axim,			9 cs.
Gijon,			1
Lagos,			125 kgs
Manaos,			15 brls.
Piraeus,			16
Rosario,			16
Rouen,			20
St. Domingo,			10
Savanna,			101
Seville,			5
Sierra Leone,			30
Talcahuano,			19
Trieste,			25
Vera Cruz,			2 cs.

Paraffin Wax—

Boston,	50 cs.		
Trieste,	100 bgs.		
Odessa,	100		
Pasages,	333		
Phosphorus—			
Hiogo,	10 cs.		£128
Plumbago—			
Valparaiso,	5 cks.		
Potash—			
Corunna,	6 c.		£7
Potassium Bichromate—			
Ghent,	5 t.	2 c.	£160
Galatz,	5	4	215
Lisbon,		2	5
Santos,		2	94
Alexandretta,		1	14
Potassium Chlorate—			
M. Video,		4 c.	£12
Amsterdam,		4	13
Trieste,		5 t.	329
Antwerp,		3	198
Genoa,		5	16
Hamburg,		1	15
Odessa,		10	36

Potassium Sulphate—

B. Ayres,	10 c.		£13
Salt—			
Adelaide,	175 t.		
Amsterdam,	132		
Antwerp,	345		
Baltimore,	292	18 c.	
Boston,	140		
Brass,	14	9	
B. Ayres,	54	5	
Dubreka,	199	19	
Ghent,	160		
Lagos,	199	19	
Montreal,	65		
Para,	387	10	
Rotterdam,	113		
Bakana,	51	11	
Brussels,	1	14	
Cameroon,	16	4	
Laurvig,	150		
Manaos,	16	8	
M. Video,	2	3	
New York,	105		
Philadelphia,	30		
Rio Nunez,	203	2	
Rio Pongo,	146	18	
Rouen,	20		
Toronto,	90	18	

Salt Cake—

Baltimore,	74 t.	17 c.	£119
Saltpetre—			
Natal,		5 c.	£6
Para,	1 t.	5	32
Madeira,		7	8

Sheep Dip—

B. Ayres,	2 t.	4 c.	£60
Punta Arenas,	33	2	2 q. 736
Soap—			
Accra,	664 bxs.		
Algoa Bay,	201		
Axim,	74		
Barbadoes,	1,525		
Bathurst,	334		
Belize,		1 cs.	
Cabenda,	250		
Calcutta,	15	32	
Cameroon,	120		
C. C. Castle,	240		
Chama,	40		
E. London,	460		
Elmina,	50		
Gibraltar,	300		
Gr. Caiary,	665		
Guantanamo,		2	
Lagos,	852		
Landana,	205		
Longo,	160		
Malta,		52	
Manaos,	1,270		
Nassau,	19		
N. Orleans,	125		
New York,	100		
Para,	300		
Pt. Natal,	1,549	40	
St. John's, Nfld.,	30		
St. Lucia,	15		
Shanghai,	5,596		
Sierra Leone,	50	2	
Singapore,	1,000		
Teneriffe,	524		
Trinidad,	1,100		
Valparaiso,		25	
Aaran,	120		
Addab,	50		
Alexandria,		60	11 brls.
Benin,	100		
Bombay,	45	3	22 kgs.
Brussels,	400		
B. Ayres,	110		
Cape Town,	500		
Genoa,	90	10	
Gr. Bassam,	15		
Hong Kong,	200		
Limassol,		10	
Madeira,		1	
Mossamedes,		12	
Naples,		7	
Pt. Elizabeth,	300		
Rangoon,		12	
Rio Grande,		5	
San Juan,	300		
Stockholm,		50	
Syria,		1	
Trinidad,	605		

Soda Alkali—

Corfu,	107 brls		
Galatz,	20		
Oporto,	15		
Para,	20		
Soda Ash—			
Baltimore,	282 cks.	1,264 bgs.	
Boston,	148	1,586	
Corfu,		50 brls.	
New York,	113	200	
Philadelphia,	202	2,808	
Rotterdam,	11	100	
Salonica,		210	
Smyrna,		160	
Syria,		5	
Venice,	39	390	
Vigo,	9		
Antwerp,		100	
Bombay,	45		
Brisbane,	67		
B. Ayres,	100		
Cienfuegos,	4		
Copenhagen,		1,000	
Fiume,		150	
Genoa,	17	80	
Havana,	4		
Kobe,	100		
Oporto,	3		
Riga,	12		
San Francisco,			

Soda Crystals—

Alexandria,	25 brls.		
Boston,	336		
Calcutta,	23		
Halifax,	20		
Malta,	20		
St. John's, Nfld.,	55		
Porto Alegre,	50		
Pt. Natal,	16	40 kgs.	
Sodium Arseniate—			
Rouen,	4	brls.	
Sodium Borate—			
Antwerp,	8	cks.	
Sodium Bicarbonate—			
Galatz,	40 kgs.	63 brl.	
London, Ont.,	100	20 cks.	
Rotterdam,			
Seville,	60	4	
Adelaide,	100		
Almeria,	20		
Brisbane,	100		
B. Ayres,	50	19	
Charlotte Town,	50		
Collingwood,	100		
Copenhagen,	245	38	
Genoa,	6	39	
Halifax,	25		
Hamburg,	85	7	5
Nagasaki,	200		
Pt. Natal,	45		

Sodium Carbonate—

Barcelona,	29 cks.		
New York,		140 brl.	
Oporto,		9 dms.	
Tuticorin,			
Sodium Chlorate—			
Hamburg,	102 kgs.		
Sodium Hyposulphite—			
N. Orleans,	300 kgs.		
Sodium Silicate—			
Barcelona,	50 brls.		
Brisbane,	8		
Piraeus,	5		
Rosario,	14		
Seville,	50		
Smyrna,	40		
Valencia,	35	30 cks.	
Volo,	5		
Alicante,		32	
Montreal,		92	
Toronto,		57	

Sulphur—

Soap—		
Accra,	664	bxs.
Algoa Bay,	201	
Axim,	74	
Barbadoes,	1,525	
Bathurst,	334	
Belize,		1 cs.
Cabenda,	250	
Calcutta,	15	32
Cameroons,	725	

HULL.*Week ending November 11th.*

Alkali—	
Christiania,	20 cks.
Reval,	75
Stettin,	100 bls.
Ammonium Sulphate—	
Antwerp,	99 bgs.
Rotterdam,	382
Antimony—	
Reval,	5 t.
Bleaching Powder—	
Boston,	119 cks.
Copenhagen,	2
Reval,	20
Stettin,	75
Borax—	
Antwerp,	40 cks.
Rotterdam,	20
Stettin,	21
Wyburg,	1
Caustic Soda—	
Bari,	65 dms
Catania,	17
Helsingfors,	2 cks.
Messina,	15
Trieste,	47
Venice,	52
Chemicals (otherwise undescribed)	
Antwerp,	8 cks. 29 cs.
Amsterdam,	3
Bari,	10
Copenhagen,	15
Christiania,	73
Danzig,	8
Drontheim,	307 slbs.
Gothenburg,	51
Hamburg,	26
Harlingen,	113
Konigsberg,	1
Messina,	8
Palermo,	15
Rotterdam,	17
Stettin,	50
St. Petersburg,	3
Wyburg,	2
Cottonseed Oil—	
Amsterdam,	21 c.
Cologne,	202
Flushing,	198
Hamburg,	400
Rotterdam,	800
Stettin,	245
Trieste,	1,517
Dyestuffs (otherwise undescribed)	
Antwerp,	5 cs. 1 ck.
Danzig,	10
Flushing,	25 bls.
Hamburg,	3
Rotterdam,	22
St. Petersburg,	8
16	3
Guano—	
Dunkirk,	39 t.
Linseed Oil—	
Aalesund,	14 c.
Bergen,	24
Copenhagen,	31
Christiania,	316
Dunkirk,	35
Drontheim,	17
Hamburg,	135
Rotterdam,	17
Stettin,	80
Trieste,	35
Logwood—	
Antwerp,	90 bls.
Mineral White—	
Copenhagen,	10 bls.
Harlingen,	200
Rotterdam,	10 cks.
Naphtha—	
Copenhagen,	3 dms.
Painters Colours—	
Antwerp,	46 cks. 4 cs
Amsterdam,	4
Bergen,	4
Bremen,	1
Copenhagen,	24 dms.
Cologne,	1
Christiania,	1
Dunkirk,	10
Danzig,	10
Drontheim,	60 pks.
Ghent,	1
Helsingfors,	23
Hamburg,	20 dms. 4
New York,	9
Rotterdam,	1 cs.
Stettin,	65 pks.
St. Petersburg,	2
56	

Pitch—

Antwerp,	560 t.
Helsingfors,	125 cks.
Salt—	
Christiania,	250 cs. 102 bls.
Size—	
Flushing,	20 cks
Ghent,	4
Gothenburg,	10
Soap—	
Bergen,	10 cs.
Tar—	
Amsterdam,	6 cks.
Copenhagen,	7
Helsingfors,	361
Stettin,	16 cs.
Varnish—	
Antwerp,	8 cks.
Amsterdam,	2
Copenhagen,	1 cs. 2 bls.
Christiania,	1
Ghent,	7
Gothenburg,	1
1	1

GLASGOW.*Week ending November 16th.*

Alumina Sulphate—	
Calcutta,	11 t. 4 c.
£30	
Ammonia (Liquid)—	
Bordeaux,	20 t.
Ammonium Sulphate—	
Calcutta,	8 t. 17 c.
Demerara,	297 13 1/4
Genoa,	30 18 1/2
£123	3,942
390	
Arsenic—	
Calcutta,	2 t. 10 c.
£56	
Asbestos—	
Calcutta,	6 1/2 c
£58	
Bleaching Powder—	
Calcutta,	58 t. 16 c.
Antwerp,	11 5 1/2
£780	80
Borax—	
Cape Colony,	2 t.
£62	
Carbonic Acid—	
Rotterdam,	5 tubes
£3	
Caustic Soda—	
Montreal,	10 t. 4 c.
Sydney,	21
New York,	474
Chemicals (otherwise undescribed)	
Cape Colony,	£40
Coal Products—	
Creosote Oil	
Stockholm,	20 cks.
£20	
Pitch	
Bordeaux,	900 t.
New York,	77 3 c
Barcelona,	811 5
1,110	
Tar	
Bombay,	165 mts.
£76	
Tar and Pitch	
Calcutta,	£82
Colours—	
Montreal,	2 1/2 c.
£28	
Copperas—	
Montreal,	31 t. 17 1/4 c.
£50	
Dyestuffs—	
Extracts	
Montreal,	34 t. 2 1/2 c.
£957	
Fustic Extract	
Montreal,	4 t. 13 c.
£185	
Logwood	
Montreal,	7 t. 12 1/4 c.
£58	
Boston,	2 11
35	
Hydrochloric Acid—	
Trinidad,	£27
Iodine—	
Hamburg,	10 cks.
£3,700	
Linseed Oil—	
M. Video,	£50
Montreal,	25 t. 14 1/4 c.
£509	
Cape Colony,	19 9 1/2
£497. 13s.	
Litharge—	
Hamburg,	6 cks.
£17	
Montreal,	8 t. 18 1/2 c.
£20	
Magnesium Sulphate—	
Sydney,	3 t. 11 c.
£31	
Manganese—	
Antwerp,	5 t.
£50	
Manure—	
Barbadoes,	11 t. 1 1/4 c.
£77	
Jamaica,	25 10 1/4
226	
Demerara,	20
72	
Genoa,	93 12
500	

Paint—

M. Video,	£125
Jamaica,	3 t. 1 1/4 c.
58	
Alexandria,	1 15
104	
Demerara,	30

Painters' Colours—

Colombo,	6 t. 1 c.
£82	
Jamaica,	71
Cape Colony,	91
Manzanillo,	80
4	11

Paraffin Wax—

Christiania,	1 t. 2 c.
£22	
Hamburg,	10 bgs.
25	
Cape Colony,	7 2 1/4 c.
211	
Marseilles,	6 10 1/4
180	
Barcelona,	13 4
306	

Potassium Bichromate—

Gothenburg,	5 t. 19 1/2 c.
£214	
Rotterdam,	1 ck.
20	
Montreal,	4 19 1/4
198	
New York,	31 13 1/2
1,258	
Boston,	7 2
265	
Genoa,	11 18 1/2
468	

Soap—

Antigua,	2 t. 9 c.
£35	
Cape Colony,	3 5 1/2
75	
New York,	3 18
50	

Sodium Bichromate—

Montreal,	2 t. 10 c.
£83	
New York,	6 6 1/4
293	
Antwerp,	7 7 1/4
236	
Genoa,	16 14 1/2
513	

Sodium Sulphate—

Montreal,	17 t. 9 1/4 c.
£40	

Stannous Chloride—

Jamaica,	11 c.
£37	

Tallow—

Rotterdam,	12 t. 10 c.
£530	
Alexandria,	18 1/4
28	

Varnish—

Gothenburg,	£6
Alexandria,	14 1/2 c.
60	

White Lead—

Alexandria,	4 t. 19 c.
£75	
Cape Colony,	3 3
64	
Natal,	63
Sydney,	15
322	

TYNE.*Week ending November 11th.***Alkali—**

Antwerp,	2 t. 10 c.
£12	
Barcelona,	15 12
20	
Christiania,	20 2
10	
Riga,	10 4

Ammonium Carbonate—

Copenhagen,	5 c.
-------------	------

Ammonium Chloride—

Genoa,	11 c.
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Ammonium Sulphate—

Valencia,	105 t. 14 c.
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Antimony—

New York,	22 t. 10 c.
£1	
Barcelona,	1
Hamburg,	7 10
Copenhagen,	6
Rotterdam,	2 10

Arsenic—

Barcelona,	15 c.
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Asbestos—

New York,	70 lbs.
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Barium Binoxide—

New York,	5 c.
-----------	------

Barium Carbonate—

Hamburg,	100 t.
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Bleaching Powder—

New York,	100 t. 5 c.
Antwerp,	22 10
291	
Horsens,	1 9
Riga,	15 6
Rotterdam,	24 18
Gothenburg,	20
Genoa,	46 12
Leghorn,	9 17
Lisbon,	4 18

Calcined Magnesia—

Genoa,	3 c.
--------	------

Carbolic Acid—

Bergen,	3 c.
---------	------

Caustic Soda—

New York,	189 t. 4 c.
Antwerp,	10
Barcelona,	152 2
Hamburg,	42 5
Arendal,	3 18
Christiania,	4 18
Riga,	10

Valencia,	47 t. 11 c.
Libau,	20
Rotterdam,	3 6
Drontheim,	3
Gothenburg,	57 9
Genoa,	110 3
Leghorn,	10 8

China Clay—

Barcelona,	10 t.
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Colours—

Hamburg,	12 c.
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Copperas—

Copenhagen,	2 t.
-------------	------

Litharge—

Hamburg,	12 c.
Christiania,	9
Riga,	9 t. 15
Genoa,	11
Lisbon,	1 3
Gothenburg,	1 8

Magnesia—

Barcelona,	9 t. 10 c.
Hamburg,	3

Magnesium Carbonate—

New York,	13 c.
Genoa,	6

Oxalic Acid—

Barcelona,	5 t. 2 c.
------------	-----------

Paint—

Antwerp,	1 t. 3 c.
Bergen,	6
Genoa,	10 15

Phosphorus—

Barcelona,	3 t. 13 c
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Soda—

Holbaek,	40 t. 2 c.
Bergen,	3 4
Odense,	10 15
Randers,	70 15
Lisbon,	2 7
Genoa,	15
Gothenburg,	15 8

Soda Ash—

Hamburg,	48 t. 13 c.
Riga,	30 3
Genoa,	5 6
Gothenburg,	50 1

Sodium Hyposulphite—

Hamburg,	12 t. 12 c.
Riga,	10 2

Sodium Silicate—

Valencia,	17 t. 2 c.
Rotterdam,	1 7
Genoa,	3 8

Sulphate of Lime—

Genoa,	16 t. 16 c.
--------	-------------

Sulphur—

Antwerp,	5 t.
Riga,	15

Superphosphate—

Genoa,	200 t. 1 c.
--------	-------------

White Lead—

Bergen,	10 c.
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GOOLE.

PRICES CURRENT.

WEDNESDAY, NOVEMBER 22nd, 1893.

PREPARED BY MESSRS. HIGGINBOTTOM AND CO., 116, PORTLAND STREET, MANCHESTER.

The values stated are F.O.R. at maker's works, or at usual ports of shipment in U.K. The price in different localities may vary.

Acids:—		£ s. d.	Lime, Acetate (brown)		£ s. d.
Acetic, 25% and 40%	per cwt.	7/6 & 11/3	" (grey)	per ton	7 0 0
" Glacial	"	50/-	Magnesium (ribbon and wire)	per oz.	11 5 0
Arsenic S.G., 2000°	"	0 14 6	" Chloride (ex ship)	per ton	2 10 0
Fluoric	per lb.	0 0 3 3/4	" Carbonate	per cwt.	1 17 6
Muriatic (Tower Salts), 30° Tw.	per bottle	0 0 10	" Hydrate	per ton	17 0 0
" (Cylinder), 30° Tw.	"	0 3 0	" Sulphate (Epsom Salts)	per ton	2 19 0
Nitric 80° Tw.	per lb.	0 0 1 3/4	Manganese, Sulphate	"	17 15 0
Nitrous	"	0 0 1 3/4	" Borate	per cwt.	2 12 6
Oxalic	nett	0 0 3 3/4	" Ore, 70%	per ton	4 5 0
Phosphoric, 1750°	"	0 1 2 1/2	Methylated Spirit, 61° O.P.	per gallon	0 2 0
Picric	"	0 1 0	Naphtha (Wood), Solvent	"	0 3 9
Sulphuric (fuming 50%)	per ton	15 10 0	" Miscible, 60° O.P.	"	0 5 0
" (monohydrate)	"	5 10 0	Oils:—		
" (Pyrites, 168°)	"	3 0 0	Cotton-seed	per ton	23 0 0
" " 150°	"	1 5 0	Linseed	"	22 0 0
" (free from arsenic, 145°)	"	1 6 0	Petroleum, Russian	per gallon	0 0 3 3/4
Sulphurous (solution) S.G. 1025	"	3 0 0	" American	"	0 0 5 3/4
Tannic (pure)	per lb.	0 1 2	Phosphorus (yellow)	per lb.	0 2 2
Tartaric	"	0 0 11 1/2	" (red)	"	0 2 9
Arsenic, white powdered	nett	13 5 0	Potassium (metal)	per oz.	0 3 7
Alum (loose lump)	"	5 2 6	" Bichromate	per lb.	0 0 4 1/2
Alumina Sulphate (pure)	"	5 0 0	" Carbonate, 90% (ex ship)	per ton	16 10 0
Aluminoferic	"	2 10 0	" Chlorate	per lb.	0 0 8
Aluminium	per lb.	0 3 0	" Cyanide, 98%	"	0 2 0
Ammonia, Anhydrous	"	0 1 2	" Hydrate (Caustic Potash) 80/85%	per ton	21 15 0
" " 880=28°	per lb.	0 0 3	" " (Caustic Potash) 75/80%	"	20 10 0
" " =24°	"	0 0 2 1/4	" " (Caustic Potash) 70/75%	"	20 0 0
" Carbonate	nett	0 0 3 1/2	" Nitrate (refined)	per cwt.	1 2 6
" Muriate	per ton	23 0 0	" Permanganate	per cwt.	3 5 0
" " (sal-ammoniac) 1st & 2nd	per cwt.	37/- & 35/-	" Prussiate Yellow	per lb.	0 0 8 3/4
" Nitrate	per ton	42 0 0	" Sulphate, 90% (ex ship)	per ton	9 15 0
" Phosphate	per lb.	0 0 10 1/2	" Muriate, 80% (do.)	"	8 0 0
" Sulphate (grey) London	per ton	13 10 0	Silver (metal)	per oz.	0 2 8 1/4
" " (grey) Hull	"	13 10 0	" Nitrate	"	0 2 10
Aniline Oil (pure)	per lb.	0 0 6 1/4	Sodium (metal)	per lb.	0 3 4
Aniline Salt	"	0 0 5 3/4	" Carb. (refined Soda-ash) 48%	per ton	5 10 0
Antimony	per ton	45 10 0	" " (Caustic Soda-ash) 48%	"	4 10 0
" (tartar emetic)	per lb.	0 1 0	" " (Carb. Soda-ash) 48%	"	4 10 0
" (golden sulphide)	"	0 0 10	" " (Carb. Soda-ash) 58%	"	4 2 6
Barium Chloride	per ton	7 10 0	" " (Soda Crystals)	"	3 5 0
" Carbonate (native)	"	3 10 0	" Acetate (ex-ship)	"	16 0 0
" Sulphate (native levigated)	"	45/- to 75/-	" Arseniate, 45%	"	11 0 0
Bleaching Powder, 35%	nett	8 10 0	" Chlorate	per lb.	0 0 8 3/4
" Liquor, 7%	"	3 10 0	" Borate (Borax)	net, per ton	28 10 0
Bisulphide of Carbon	"	11 15 0	" Bichromate	per lb.	0 0 3 3/4
Chromium Acetate (crystal)	per lb.	0 0 6	" Hydrate (77% Caustic Soda) (f.o.b.) net pr. ton	lots	12 0 0
Calcium Chloride	per ton	2 5 0	" " (74% Caustic Soda)	"	11 10 0
China Clay (at Runcorn) in bulk	"	17/6 to 35/-	" " (70% Caustic Soda)	"	10 15 0
Coal Tar Products and Dyes:—			" " (60% Caustic Soda)	"	9 15 0
Alizarine (artificial) 20%	net	0 0 8	" " (60% Caustic Soda, cream) (f.o.b.)	"	9 10 0
Magenta	"	0 3 9	" Bicarbonate	"	7 0 0
Anthracene, 30% A, f.o.b. London	per unit	0 1 2	" Hyposulphite	"	6 10 0</

THE CHEMICAL TRADE JOURNAL

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OIL, PAINT and COLOUR REVIEW.

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341.

SATURDAY, DECEMBER 2, 1893.

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Notices.

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Communications for the Editor, if intended for insertion in the next week's issue, should reach the office not later than **Tuesday** evening.

Contributors are invited to forward items of intelligence, or cuttings from newspapers, of interest to the trades concerned.

Reports, and correspondence on all matters of interest to the chemical and allied industries, home and foreign, are solicited. Contributors should condense their matter as much as possible, and send only one side of the paper, and in all cases give their names and addresses, not necessarily for publication. Sketches should be sent on separate sheets.

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Advertisements intended for insertion in the current week's issue should reach the office by **Wednesday morning** at the latest.

CURRENT TOPICS.

THE STATUS OF CHEMICAL WORKERS.

SOME interesting particulars have been elucidated by the eminent statistician, Mr. C. Booth, in a paper on "The Life and Labour of People in the Metropolis," for which he has been able to make use of the results of the last census earlier than most people.

Strange to say, he has devoted a great deal of attention to chemical, paint, and other industries, and his remarks are worthy of the attention of those who have such a deal to say about the sufferings of the chemical operative. He divides the labour into three classes, and is thus able to draw a distinction in the wages, which do not show that this class of labour has much cause to discuss the living-wage question.

To arrive at the average annual earnings is not such an easy matter, owing to the changes in the amount of work offering, this difficulty being greatest in connection with the white-lead industry. Our authority states, however, that in the chemical trade itself the work is very fairly regular, and in the hands of a number of regular employes, who it seems make up, and even more than make up, for the slack times, by overtime when things are active.

With soap and candle makers, including makers of size and glue, slack times are more keenly felt, as amongst time workers at such periods one fifth of those getting less than fivepence an hour have to drop off altogether, while the other rates are correspondingly reduced. Taking one thing with another, the lot of these operatives does not seem so very dreadful. Those engaged in the Midlands and the North, many of whom seem discontented, may wish that they too worked in London, but they can console themselves with the knowledge that the rates of wages approximate closely to those prevailing in their own districts, so there is not much to choose between here and there.

LABOUR IN THE SICILIAN SULPHUR MINES.

Not so fortunate are the workers in some of the sulphur mines in Sicily. There is ample room for, and urgent need of reformers there. The revelations recently made concerning the employment of children in the mines are all the more revolting since, though the employment of children of tender years is illegal, the parents connive at such practices. In fact, they actually sell their children for about five pounds sterling, the children having to work out their freedom by paying back what was given for them. They are, in the meantime, wretchedly paid, and then not in money, but in inferior but high-priced flour. They have to sleep in the mines at night, six out of seven days. Escape is precluded by the fear of ill-treatment, which at times is almost brutal. The worst of it is that the work that they have to perform is wholly unsuited to them, and much too arduous. The Minister of Agriculture is said to be interfering in the matter, and high time, too. We ourselves were none too good till of late years

in the matter of child labour, but we have at least escaped the stigma of employing slaves.

LEGISLATION AND ADVERTISING.

Many have been going to do much to put restrictions, if not a complete veto, on rural advertising. Even the London County Council had a lot to say about it, and now the matter has got into Parliament. A worthy gentleman of the name of Caine has introduced a Bill to control advertising. We have not gone as far as the Americans yet, and placarded the Westminster Embankment similarly to the rocks on the Hudson River, though the Pyramids know, we believe, something about mustard. There is a medium in all things, and there is little fear of the extravagant notions of the Americans being adopted by Englishmen. Our cousins are, by nature, extravagant, even down to their anecdotes. There always will be people who would have no advertising at all. Some people would even do away with corporal punishment and the criminal law. There are, however, a goodly number of people who are either advertisers or advocates of the practice, and, moreover, they are mostly very influential personages. Where advertisements become dangerous to the public, as abnormally high sky signs would have been in the recent gale, then restrictions are justifiable, but, otherwise, facts over-rule fancies and fads. There need be little cause for anxiety on the score of curtailed advertisements we should think, since the introduction of a Bill will appease the enthusiasts, and we know the fate of the vast majority of such measures. When the third reading comes on will be time enough to stir, while, for the nonce, enough is being done by doing nothing.

THE ARTIFICIAL PRODUCTION OF PETROLEUM.

BY DR. C. ENGLER.

SCIENTISTS have discussed very often in the last few years the question in which way petroleum, this source of wealth, with its special scientific interest for America, was formed by nature. According to one theory it is generated from inorganic materials. Sokoloff thinks that petroleum was produced during the period of the formation of our planet out of cosmical hydrocarbons, which, in the beginning dissolved in the soft mass, separated from it later on. Mendeleeff assumes that water entering by fissures and chasms the interior of the earth came in contact with melting carbide of iron and produced so in a simple manner oxide of iron and the hydrocarbons of petroleum. Strong objection cannot be made to these two theories from the chemical standpoint; but the composition of the different kinds of petroleum is against them, and geology considers them not free from objections.

For a series of years the idea that petroleum was produced from the remains of plants by a kind of a distillation process, was most generally adopted, especially by chemists. Chemical and geological reasons are against this theory. From the chemical standpoint it seems quite impossible that the substance of the plants could be split up by distillation into petroleum without leaving charcoal or coke. There would also be a genetic connection between coal and petroleum; but in occurrences of the ordinary kind, coal is nearly always absent. If this were really the case, then there ought to be with every oil occurrence in close connection a coal bank, which really seldom happens.

By a third theory the remains of animals form the raw material from which petroleum is formed in nature. There are many facts proving the decay of masses of animals which we find now in banks in the crust of the earth in the form of the remains of shells, fishes, saurians, &c. Prominent scientists, amongst them the Americans, Wrigley, Whitney, Hunt, and others, and in Europe Höfer and Ochsenius especially defend this idea on geological grounds. But I will not enter into the geological discussion, preferring to try to give an answer to the question: How can the transmutation of animal remains into oil be imagined?

In order to answer this some thousands of salt water fishes and also shells have been distilled under strong pressure. The result was a liquid, containing mostly nitrogenous bases, such as pyridin, which was little or not at all similar to petroleum. I then recalled some experiments of Wetherill and Gregory, who found that the wax found in cadavers, the so-called "Adipocere," was nothing else but the fatty residue, which remains after the putrefaction of all the other animal

matter, especially of the nitrogenous constituents of the cadaver also well known that even fossil bones frequently contain fat. The question now raised was this: Could not the process in nature have been a similar one; should not first of all the nitrogenated substance have been destroyed leaving the fat, which was then transformed into oil. In order to prove chemically this possibility I distilled animal fat (train-oil) to distillation—first in a sealed glass later on in a large iron vessel—under a pressure of twenty-hundred spheres at a moderate heat (300–400° C.) and to my great delight that under favourable conditions seventy per cent. of the train-oil transformed into petroleum. This equals ninety per cent. of the natural output. Beside the oil some water and some combustible always formed. The same behaviour has been shown by oil like butter, the fat of hogs, artificial fats, also the chemical glycerids of the fats like tri-olein, tri-stearin and the free fatty acids. All could be transformed into petroleum by distillation under pressure when managed in the proper way.

I have here a liquid which is the distillate of the fish-oil which have isolated from it almost all the hydrocarbons which have been discovered in the petroleum of Pennsylvania. The other products of the oil burning in this small lamp, too—are oils obtained from crude material by purification.

But not only illuminating oils are produced. I separated by distillation those lighter hydrocarbons which compose the gasoline, ligroin, the benzine, etc. Recently I have succeeded in finding separating paraffin wax and lubricating oils from those parts of crude oil which show a high boiling point. This removes the objection of O. Ross to my theory of the formation of petroleum from remains. As a matter of fact I have found in the distillate obtained from the decomposition of train oil nearly all the constituents which have been separated from the natural crude petroleum, and even the gases like natural gas, consist essentially of marsh gas.

Very recently I have made close investigations on the mechanism of the formation of the hydrocarbons of the petroleum produced by distillation of fat under pressure. These experiments prove that the simpler organic acids split up in the same way, almost the theoretical quantity of the respective hydrocarbon. Phenylacetic acid yields toluene. For further details I am obliged to refer you to the actual experiments. I need only remark, that to assume that the acids with high molecular weights are decomposed with the production of a number of hydrocarbons.

To recapitulate, it is a geological fact that we find in nature remains of antediluvian animals as shells, fishes, saurians accumulated in masses. Whether these animals have been piled up in consequence of a natural super-production in special places in the ocean, by currents, or in consequence of great revolutions of the earth, this can be decided by geology; but the remains exist.

Now in which manner do the organic substances of these animals become decomposed?

The animal substance consists essentially of nitrogenated matter and fat. The former is easily decomposed, the latter is very stable, a fact which has been very well known for a long time, and has been shown again by exact investigations. Therefore we find the remains of cadavers in old graves, therefore the fat in the bones of mammals thousands of years old, therefore the fat on the bottom of the sea recently found.

Whether and how far the fat was decomposed in this long period of time the water splitting up glycerol and forming the free acid, for instance, the fat in the bones of mammals, cannot be answered. Both fat and the fatty acids form petroleum, when distilled under pressure.

We can imagine that such remains wrapped in mud and transformed by the currents in the ocean easily accumulate, and later on under the pressure of sedimentary layers or strata, perhaps under the influence of heat, too, are transformed into petroleum. This is only one of many possibilities by which the mechanical process of the transformation of fat into petroleum may have happened.

Under any circumstances I think I have proved that from the chemical standpoint, the formation of petroleum from animal remains is the greatest probability, as we are able now to transform every animal into petroleum.—*four. Am. Chem. Soc.*

SERIOUS FIRE AT A CHEMICAL WORKS.—A serious fire occurred last week at the works of the Lawe's Chemical Manure Co., Ltd., Creek, London. It was some time before the fire could be got under and considerable damage was done.

SOCIETY OF CHEMICAL INDUSTRY.—*London Section.*—A meeting of this section will be held at Burlington House on Monday next at 8 o p.m., when the following papers will be read:—"Copper and its compounds" by Mr. H. Harris; "The product of the action of chlorine upon metallic silver" by Mr. Chapman Jones. There will also be an adjourned discussion on Mr. Watel's paper on "The action of air in motion to chemical industry." The chair will be taken by W. Thorp, Esq.

RIVER POLLUTION BY THE BURY CORPORATION.

AT the Bury Police-court on Monday, 27th inst., before the Borough Justices, the Corporation of Bury were charged with two offences under the Mersey and Irwell Joint Committee Act, 1892. The justices on the bench were Mr. J. O'Neil (chairman), Mr. J. H. Pickup, Mr. H. Webb, and Mr. J. Halliwell. Mr. Sutton appeared for the Joint Committee, instructed by Mr. F. C. Hulton. Mr. John Haslam, the Town Clerk, represented the Corporation. In October last year, the Corporation were fined £10., with £20. costs, for allowing liquid sewage to flow into the Irwell and the Roach, and they were ordered within twelve months to construct works to deal with the sewage of the town. They were now charged (1) with having failed to carry out the order and (2) with continuing to allow sewage to go into the rivers.

Mr. Sutton said that the Corporation appealed to the Salford Quarter Sessions against the order made by the justices, but the appeal was dismissed with costs. Since the date of the order nothing whatever had been done by the Corporation. The Joint Committee had received no intimation from the Corporation as to what they were doing or intended to do, and they had therefore no alternative but to institute the present proceedings. Thirty-five days had elapsed since the expiry of the time allowed to the Corporation to construct their sewage works. It was provided in the Act that a penalty of £50. could be inflicted for every day they were in default, and the Corporation had consequently incurred a liability of £1,750. The object of the Act in imposing such a penalty was to make it the interest of authorities to carry out the provisions of the Act, and without loss of time.

Mr. H. T. Bull, deputy clerk to the justices, asked the Town Clerk if the Corporation pleaded guilty?

The Town Clerk said he had, first of all, an objection to take to the first summons. The point of the objection was that the summons charged the Corporation with two offences, and was therefore bad in law.

The objection was not sustained.

The Town Clerk then said he had no alternative but to admit that there had been a breach of the order. But he thought that when their worshipers understood the circumstances they would be of opinion that a nominal penalty would meet the case. The order against the Corporation was no doubt made in October, but the appeal was not heard until January, and the result could not be brought before the Council till February. On the 20th February a meeting of the General Purposes Committee was held, and it was then decided that further opposition to the action of the Joint Committee was inadvisable, and that a committee should be appointed to determine the best scheme for the treatment of the sewage of the borough. A number of the members of this committee were not familiar with the various reports which had been presented by the Borough Engineer and with the scheme before the Council. The Borough Engineer was accordingly instructed to prepare an epitome of his various reports. The committee met on the 8th May to consider the epitome. On the 29th June they visited Huddersfield to see the sewage works there. It was then decided that the Corporation should endeavour to make peace with the Local Government Board, which had refused to sanction the scheme adopted by the Council on the ground that there was not sufficient land for the treatment of the sewage. On the 12th July he wrote to the Local Government Board asking them to further consider the matter. On the 11th August the Board sent down Colonel Hasted, to make inquiry on the spot, and as a result of his report the Local Government Board on the 22nd August wrote to say that they adhered to their view that additional land must be provided before they could sanction the scheme. They pointed out that the Corporation could take compulsory powers to obtain land if they could not obtain it by voluntary agreement. It was all very well to say that, but there was really no land available adjoining their own at the right level. When the letter from the Local Government Board was communicated to the Corporation it was thought advisable to go to the extreme course of promoting a Bill in Parliament, insisting upon their scheme. But while he was preparing the Bill correspondence went on with the Local Government Board, and on the 3rd November he wrote to Mr. Fowler, the President, asking him to receive a deputation from the Corporation. Up to the present time Mr. Fowler had not been able to do so, but they hoped that in the near future—probably next week—they would be able to see Mr. Fowler and perhaps obviate the necessity for promoting the Bill. He hoped that what he had said would convince their worshipers that the Corporation had done all in their power to carry out their sewerage scheme, and that it was not their fault that they had not been able to set to work before now. He asked that only a nominal penalty should be imposed, and that the time for constructing the works should be extended for twelve or eighteen months—it was no use his asking for a shorter time.

THE CORPORATION FINED.

The Justices took a considerable time to consider their decision. On returning into court the Chairman said the Corporation would be fined £35., being at the rate of £1. per day, for non-compliance with the order of the court of October, 1892, with £5. for costs. For the second offence against the Act a fine of 20s. would be imposed, with £5. for costs. The operation of the order of last October would be suspended for a period of twelve months from this date.

CLOTH OILS IN REGARD TO FIRE RISKS.

BY W. MC D. MACKEY.

(Specially Contributed.)

WHEN dealing with distilled oleins, both foreign and distilled from black oil, and brown or Yorkshire grease, the chemist is seriously troubled by the mineral oil question, which assumes a fictitious importance owing to the insurance companies' practice of charging a high rate when an oil is classed as containing mineral oil. Thus black oil containing say, for the sake of simplicity, no unsaponifiable matter, may yield on distillation with superheated steam an olein containing a considerable quantity of unsaponifiable hydrocarbon oil, and the amount may be increased by repeated distillation.

Dr. Lewkowitsch found a specimen of Yorkshire grease that he examined to yield, when distilled on the manufacturing scale, 34.54 per cent. of unsaponifiable hydrocarbons.

These hydrocarbons, the result of reduction during the distillation of fatty oils, are liable to be mistaken for added mineral oil. The nature of such hydrocarbons has not been exhaustively studied, but as far as insurance risks are concerned there seems to be little difference between them and mineral oil itself.

As a result of the new departure in insurance rating the tendency is to depend on the flash point of an oil, the amount of unsaponifiable matter and a certificate of genuineness from the vendor. This certificate in the case of recovered oils is usually valueless, as the oil manufacturer has seldom control over the oil finding its way into the seak (spent soap liquor) he buys. Though the flash point test is invaluable, the determination of the unsaponifiable matter gives data of little use as regards fire risk.

The fact that the tests ordinarily applied are inadequate is not owing to the difficulty of finding better, but to the fact that chemists are seldom asked to give their opinion as to the fire risks attending the use of oils submitted to them. The question usually is if the oil will fulfil the conditions of the schedule, and if the examination goes beyond the flash point and determination of unsaponifiable matter, it leads to questions of composition, sometimes incapable of satisfactory answer, and often of no interest whatever as regards actual fire risk.

Hence, also, the oil manufacturer, if he is so disposed, can, as far as insurance interests are concerned, practically sophisticate with impunity in certain directions.

Tests should be insisted on that would indicate the behaviour of any particular oil under the conditions obtaining in its use, and there is no doubt that if there were some authority of the nature of Lloyds' in shipping, the testing of oils by rational methods would be undertaken, to the benefit of insurance interests, and also those of the cloth and oil trades.

RECENT CUSTOMS' DECISION.

CANDLE TAR OR RESIDUUM.

IN the matter of the protest of the Standard Varnish Works, against the decision of the Collector of Customs at New York as to the rate and amount of duties chargeable on certain candle tar or residuum, imported per certain vessels, the following is the opinion by General Appraiser Lunt:—

The merchandise covered by the protests in the schedule annexed was imported at New York under the Tariff Act of October 1, 1890, as specified, and consists of so-called candle tar or residuum. It is like that passed upon in G. A. 446 and 1,109, to which we refer for findings of fact.

The importers claim the same to be dutiable at 10 per cent. ad valorem as waste under paragraph 472, N. T., or as a non-enumerated unmanufactured article under section 4. Duty was assessed at 20 per cent. ad valorem under section 4.

The United States Circuit Court at New York having affirmed the decisions of the Board as to the classification of this merchandise, therefore, in accordance with said decisions, these protests are overruled.

In protest 25,117a the protest upon the entry by the Westernland was not filed within ten days after liquidation, and as to such entry it is invalid.

Parliamentary Jottings.

THE DANGERS OF WHITE LEAD FACTORIES.

Mr. Howell asked the Home Secretary whether his attention had been called to the case of the workman who applied to the Bethnal Green Guardians for relief by reason of incapacity brought on by working in a white lead factory, his wrists being rendered useless for work after so working for the space of six years; whether anything could further be done to lessen the unhealthy nature of such work, and render white lead factories less dangerous to the health of those who were employed in them; and whether the factory inspectors kept the Home Office fully informed as to the preventive measures necessary in such factories.

Mr. Asquith replied that the case referred to was one of a class which he feared were not uncommon, though happily less frequent than they used to be. With the view of ascertaining what improvements could be made in the special rules which regulated the white lead industry, an exhaustive inquiry had been made by the departmental committee, and he hoped to receive their report in the course of a few days.

DEATHS FROM CARBOLIC ACID.

Last week Mr. Macdonald asked the Secretary of the Local Government Board whether he was aware that since February, 1892, to November, 1893, there had been 230 deaths due to the taking of carbolie acid, 174 of which were suicidal and 56 accidental; whether the Government would place carbolie acid under the Pharmacy Act, so that there might be greater restrictions placed upon its sale in small quantities; whether he would instruct coroners in certifying the cause of suicides to certify the name of the poison which caused the death; and whether he would order a return of the number of deaths caused by carbolie acid during the last five years to be placed upon the table.

Sir W. Foster: I have no information as to the number of deaths due to the taking of carbolie acid between February, 1892, and November, 1893, except that which the hon. member has been good enough to furnish. The Local Government Board have no jurisdiction with regard to the articles which are to be deemed poisons for the purpose of the Pharmacy Act, 1868. Additions to the articles specified in the schedule may from time to time be made by resolution of the Pharmaceutical Society with the approval of the Privy Council, and the Board will bring the matter under the attention of that society. The Board have no jurisdiction with regard to coroners, and are not empowered to issue any such instructions as the hon. member suggests. As regards the return, I have been in communication with the Registrar-General, and I understand that the particulars cannot at present be furnished for a later period than 1891. If the hon. member moves for a return for the five years from 1887 to 1891, it will be granted.

CHECK-WEIGHING.

Mr. Crawford asked the Secretary of State for the Home Department whether his attention had been called to a complaint of the blast furnace men of Scotland that, although they are paid by weight, they had no power to check the weighing; and whether he would consider the propriety of giving them some security in the matter, such as certain other trades enjoy.

Mr. Asquith: This matter is under consideration, but I cannot make a definite statement until the inquiries which I am directing into the subject in England and Wales, as well as in Scotland, are completed.

QUININE AND CINCHONA.

Mr. Caine asked the Under Secretary of State for India what quantity of cinchona in the bulk of all preparations had been sold by the superintendent of the Botanic Gardens, Calcutta, each year from 1886 to 1892; and what had been the average price for the year.

Mr. G. Russell: I shall be glad to hand my hon. friend a detailed statement for the seven years. In 1892-93 5,520lb. of quinine and 3,650lb. of cinchona febrifuge were sold from the factory near Darjeeling to the medical department and to the public at a price of one rupee an ounce for quinine and ten annas an ounce for cinchona febrifuge.

FISH POISONING IN THE DOON.

Mr. Wason asked the Secretary for Scotland whether his attention had been called to the wholesale poisoning of fish in the river Doon (C.T.J. 336, p. 277), and whether he would direct a public inquiry to be held into the matter.

Sir G. Trevelyan: The Crown authorities have inquired into the circumstances of this unfortunate occurrence. The result points to its having been due not to malicious mischief or to any criminal act, but to negligence. In view of the possibility of civil proceedings being taken, I refrain from saying more at present.

NEW BILL.

Mr. Caine obtained leave to bring in a Bill to prohibit advertisements in public places and rural districts. The Bill was read a first time.

Legal Intelligence.

HIGH COURT OF JUSTICE.

QUEEN'S BENCH DIVISION.

(Before Mr. Justice Kennedy, without a jury.)

HARROWING v. KATZ AND CO.

MR. ROBSON, Q.C., and Mr. H. F. Boyd, were counsel for the plaintiff; Mr. T. Bucknill, Q.C., and Mr. Reginald Brown appeared for the defendants.

This was an action to recover £105. 9s., balance of freight per steamship *Ethelreda* and interest thereon, brought by a shipowner against a charterer. The defence was that the freight was not due, as there had been a short delivery of the cargo by some 377 cases of petroleum. The *Ethelreda* was to load the oil at Batoum and deliver it at Penang and Singapore in March and April, 1891, and the plaintiff's case was that the quantity mentioned in the bill of lading given at Batoum was wrong, and that all the cases which had been taken on board at Batoum had been delivered to the charterers at Penang and Singapore. By the bill of lading, which was signed by the master, it would appear that 71,196 cases had been shipped on board at Batoum, whereas 377 short of that number were delivered at Penang and Singapore. A "tally" was kept at Batoum, both on behalf of the ship and on behalf of the charterers, and the tally-books were checked each night and signed by the mate and a representative of the charterer. From these tally-books the mate's receipts were made out each day, and from the receipts the bills of lading were made up. The cases were, however, loaded with great rapidity at Batoum, and from time to time certain cases which were leaky were rejected by the charterer's representative and put aside to be sent back to the shore. It was suggested on behalf of the plaintiff that the tally at Batoum was probably incorrect, and he proved by the evidence of the captain, the mate, and the second mate, that during the course of the voyage between Batoum and Penang the cases were not touched or handled in any way. The defendants called no evidence, but relied on the *prima-facie* evidence of the bill of lading and upon a letter of the captain to his owners, dated May 1st, 1891, from Singapore, in which he stated the shortage, and said he could not account for it.

Mr. Justice Kennedy, in giving judgment, said the question was whether he could find as a fact that there had been a short delivery by the plaintiff. The petroleum was to be shipped in "high and low screw" cases; and it was said that the loading at Batoum was a very hurried one, as many as 19,500 cases being shipped in one day. The steamer lay some 30 yards from the wharf or quay, and was loaded at the four hatches at the same time from lighters by derrick cranes, and some cases were handed up by hand, and between the 11th and 17th of March, 1891, some 71,196 cases were shipped. She then sailed and touched at Port Said, and then discharged her cargo at Penang and Singapore. Ought he to hold that 377 more cases were shipped at Batoum than were delivered at Singapore? The bill of lading, if correct when signed at Batoum, would show that there had been a short delivery to that extent. The evidence of the bill of lading would go against the owner, and the larger amount appearing in the bill of lading was strong evidence against him, and the *onus probandi* lay upon him to show that the cases were not shipped, and to discharge the *prima-facie* presumption arising from his own document. He gave very strict orders for accuracy and care in procuring and recording the materials from which the bills of lading were to be made up. He (the learned Judge) found they were prepared with remarkable care and diligence, and the orders the plaintiff telegraphed that great care should be taken were carried out, and every ten cases were ticked off, and the master gave orders to the mate that great care should be taken. When the vessel called at Port Said nothing was done to the cargo; the hatches were kept on, and the bunkering took place when they were on, and there was no evidence that there was any other aperture from which they could be extracted. The master and the mate swore there was no facility for stealing at Port Said or Penang; the hatches were kept on, and the cargo was found to be "chock-a-block." The more serious thing appeared to be what had happened at Batoum; the vessel lay at 30 yards from the shore, and was daily surrounded by the lighters and their gangs, and so far the discrepancy was possible. The owners had not succeeded in discharging the *onus* put upon them by the bill of lading. There was also the letter from the captain to his owners of the 1st of May saying that cheating might have taken place at Batoum and that 500 cases were said to have been short in another vessel, and this showed that there was a possibility that whatever irregularity there was had taken place at Batoum. There would be judgment for the defendants, and with costs.

OBITUARY.—We regret to record the death of Mr. J. Heywood, who for forty-one years acted as lecture assistant and steward of the chemical laboratories at Owens College, Manchester.

Our Book Shelf.

DANGEROUS TRADES. By C. Mallet, 22 pp. London: W. Reeves. 1893.

This pamphlet is one of the publications of the Humanitarian League, and though well-meaning in aim, is somewhat faulty in its methods.

The author speaks of some of the deadly occupations having been unknown to the general public prior to 1892, when Dr. Arlidge's book was published. Perhaps the author means herself by the general public, as we could tell of "special commissioners" who journeyed years ago to the Midlands to gather information on dangerous employments, and gave to the public such racy accounts, that the public concluded the writers had been hoaxed, long before the commissioners had ever dreamed of the possibility of such a thing. There is much truth in many of the statements no doubt, but they would carry more weight if they came from a less interested source.

Faith in the facts is shaken when reading of *alkali* dust that attacks powder packers, the biting lime rotting their teeth away. Powder packers generally pack bleach not alkali. And it is the men in the saltcake department whose teeth usually become rotten, and with hydrochloric acid gas—not lime.

In connection with white lead, the Home Office is considered at fault for not investigating the substitutes on the market. But there is no need for the Home Office to trouble themselves on that score, as the commercial world has long ago done the necessary discriminating, and had to adhere to the genuine hydrated carbonate.

As a matter of fact the Home Office have been busy with new regulations lately, so that the pamphlet taken altogether is rather inopportune.

HANDBOOKS OF COMMERCIAL PRODUCTS. Imperial Institute Series. Government Printing Office, Calcutta.

These handbooks are published separately in stiff covers. The eight specimens before us range in price from sixpence each, down to one penny. They deal of drugs, such as jalap, castor oil, etc.; also, cutch, resin and turpentine. The information they contain is compiled from various sources, but chiefly from "The Dictionary of Economic Products of India," by Dr. Watt, and deals with the habitat, vernacular titles, uses, chemical constitution and properties, and also sources of adulteration. The series should prove of beneficial service.

FOUNDATIONS OF THE MOLECULAR THEORY. By John Dalton and others, 1808-1811. Reprinted. Edinburgh: W. F. Clay, 1893. 1s. 8d.

Under this title appears the fourth of the Alembic Club reprints, which consists of extracts from the writings of John Dalton, Gay-Lussac and Avogadro, in which the leading arguments and experiments which evidence the development of the molecular theory are set forth.

One point of interest is the foot note which removes the charge often made against Avogadro of inconsistency in connection with his use of the word molecule. The order of the reprint is chronological.

OIL OF COPRAH AND PALM OIL.

AT from 30° to 31° the oil of coprah, if pure, is soluble in twice its volume of absolute alcohol. At the same temperature palm oil is soluble in four times its volume of absolute alcohol. If mixed with sparingly soluble vegetable oils or animal fats to the extent of 1-20th, or less, both become almost insoluble in the same quantity of absolute alcohol, the solvent action of which does not occasion a fractioned separation of the component parts. The mixture has acquired solubility which is peculiar to it, and which does not depend on the proportions of soluble fatty matters of which it is composed.

These differences of composition enable us to determine with precision the purity of these solid oils, a chemical analysis of which often gives uncertain and even contradictory results, especially for slight admixtures.

First Process.—Shake up for one minute, in a test tube graduated in c.c., 20 c.c. of the oil under examination with 40 c.c. of alcohol at 95°. This indispensable preliminary treatment may give certain indications. Alcohol at 95° absorbs a certain quantity of the neutral fatty substances, and the oil itself dissolves from 15 to 20 per cent. of alcohol. The solvent power of the oil decreases appreciably on the addition of oils insoluble in alcohol at 95°, such as castor and resin oils—oils which may then be easily characterised by their very distinct chemical and physical properties.

Second Process.—In a test tube graduated in c.c., treat 5 c.c. of the oil of coprah (previously washed with alcohol at 95°) with 10 c.c. of absolute alcohol, and place the tube in a water bath heated very exactly

from 30° to 31°. After some moments the tube is taken out, shaken very briskly for thirty seconds, and returned to the water bath. Pure coprah oil dissolves entirely, and the alcohol solution is perfectly clear.

Coprah oil mixed with insoluble oils (the commonest sophistication), arachid, sesame, cotton, maize, etc., does not dissolve appreciably, and forms a turbid mass with the absolute alcohol, from which it quickly falls in fine drops to the bottom of the tube where it collects. Oil of coprah containing palm oil is precipitated when the proportion of the mixture reaches 20 per cent. Below that mixture the liquid remains turbid.

The verification of palm oil is effected in the same manner, using 20 c.c. of absolute alcohol instead of 10 c.c., and operating always upon 5 c.c. of oil at the temperature of 30° to 31°.

Five c.c. of palm oil containing 20 c.c. of coprah or upward dissolves in 15 c.c. of absolute alcohol; in the same proportions the pure oil does not completely dissolve, and the mixture remains turbid. The purity of coprah and palm oil cakes is found by extracting a sufficient quantity of oil by means of any solvent and treating in the same manner—*Comptes Rendus*.

THE DEVONPORT SEWAGE.

THE drainage of the Raglan barracks into the only bay available for bathing at Devonport seems to be making a considerable stir, inasmuch that seven gentlemen have at last written to the *Times* about the matter, since little or no good came from appealing to authorities, and so they have taken the question up themselves. Acting on behalf of the Swimming Association, two specimens of water were taken—one some 300 yards from the mouth of the pipe, where only the strongest swimmers can get; and one from the water within a yard or two of the outlet itself. On the occasion of taking the water, it is worth while noting, two lads were bathing in it, and the sample was taken from a space between them. A perusal of the analysis is sufficient to show that the water of the river itself (sample A) is pure enough; and that the water in the bathing-place (sample B) is dangerously polluted. Copies of the analysis were laid before the officer commanding Royal Engineers Western District and the Medical Officer of Health, from whom they heard that "the matter was receiving attention." The Swimming Association now determined to make the highly dangerous state of affairs existing in its town thoroughly known, and to do its best, by arousing a strong public opinion, to overcome the dilatoriness of circumlocutory officials and the apathy of those commissioned to protect the public interests. When every other port is doing its best to guard against the importation of the dreaded cholera or the spread of typhoid fever, it seems a state of affairs scarcely credible that a place like Devonport should be allowed to jeopardise, not only the lives of its own citizens, but those of the soldiers and sailors who visit the port. The following extract from the report of the Plymouth borough analyst certainly tends to strengthen the position taken up by these gentlemen:

"The impure character of 'B' was amply evident on the mere inspection of the sample; it was turbid, a dirty brown colour, and emitted a most offensive sewage odour, perceptible at two or three feet from the bottle.

"Sample 'A,' on the other hand, was bright, almost free from sediment, and odourless.

"Judging from the diminished amount of total solids and chlorine in 'B,' it has obviously received and become mixed with a large quantity of 'Fresh' water—that is, water containing less total solids than the sea water; and the contaminating character of such water is manifested in the largely augmented amounts of organic impurities in the water—viz., the free and albumenoid ammonias, and the amount of oxygen consumed by the water in the periods of 15 minutes and four hours.

"In short, it has the character of a sewage-diluted sea water, and to bathe in a water so offensively smelling and having the composition of this sample ('B') is a procedure, in my opinion, dangerous to health, and, under some conditions, even to life."

THE ADULTERATION OF TEA.—In the production of some of the trashy teas sold in considerable quantities in America, one method of sophistication is to introduce leaves of other plants. This species of cheat is readily detected by means of the microscope. The tea leaf possesses so marked a character of its own, in respect to its veins and serrated edges, that it cannot be mistaken. What is called "lie tea" in China is an imitation usually containing fragments or dust of the genuine leaves, foreign leaves, and mineral matters, held together by a starch solution and coloured by a "facing" preparation. Tea is sometimes falsified by the addition of spent or partly exhausted leaves—in other words, old leaves dried for use second-hand. This is a fraud difficult to prove, though weakness of the beverage may cause it to be suspected. Sometimes teas are treated with catechu to increase their apparent strength.

TESTING FATS AND OILS.

BY DR. E. MILLIAU.

(Concluded from page 276).

SOLID VEGETABLE OILS.

Cocoonut and Palm Kernel Oils.—The production of these oils, which is continually increasing on account of their great value for the manufacture of soap, during the last few years has been made the object of several adulterations. Independently of the general chemical and physical characters of these oils as well as the sulphuric saponification which I have mentioned, we can employ with good results the determination of the saturation equivalent with normal caustic soda.

These oils containing a greater quantity of the lower fatty acids require for their saturation a larger amount of sodium oxide. It is only necessary to determine the number of c.c. of normal solution required for the saturation of five grams of the pure fatty acid to recognise these oils—cocoonut 24.1, palm kernel 22.5, while the average of the other liquids is seventeen or eighteen c.c. only. This process presents some inconveniences, especially when trying to discover small quantities of adulteration, because it must be noted that the adulteration of these oils is only practised within certain limits, otherwise their appearance would lead to its detection. Besides, when an oil is made from old or spoiled seeds the saturation is a little less.

Since the detection of adulteration in these oils depends on variations of a few tenths of a centimetre which might be caused by the variation of the oils themselves, or the method of operating, it is necessary to be very circumspect in the use of this truly scientific process.

With palm kernel oil this error might be greater because it is customary to balance the low saturation of the seed oils by the addition of cocoonut oil. As, for example, five grams of fatty acids from a mixture containing 45 per cent. of palm kernel oil, 45 per cent. cocoonut oil, and 10 per cent. peanut oil, require precisely 22.5 c.c. normal solution for their saturation.

Iodine Number.—This determination is very useful because these oils being very rich in saturated acids absorb much smaller quantities of iodine than most other oils. For example, peanut gives 97 while cocoonut and palm kernel show only 9 to 16. Unfortunately, this difference of 7 between the maximum and minimum throws us out of the way for small quantities of admixture, so much so that different authors fail to agree upon the average variation—some giving 8 to 9 only, while we are accustomed to find from 13 to 15.

To resume, this process, which, if it gave constant results, would be excellent, fails to give sufficiently accurate indications to detect adulteration of cocoonut oil when in small proportions. It is worse with palm kernel oil and of no value to distinguish between the two.

Continuing our investigations in another direction we have fortunately found a process which gives constant results when used upon these oils after a preliminary neutralisation. We have discovered that cocoonut and palm kernel oils are entirely soluble in absolute alcohol. At a temperature of 30°-31° C. the former requires two volumes and the latter four volumes for complete solution.

It is a curious phenomenon that the smallest addition of vegetable or animal oils destroys this solubility in the same quantities of absolute alcohol. The solubility of the mixture is not proportional to its composition, but the mixture acts entirely like a distinct body.

Mode of Procedure.—First operation: Twenty c.c. of the oil are shaken in a test tube with 40 c.c. of 95 per cent. alcohol. This indispensable preliminary treatment may give certain indications. Oil soluble in 95 per cent. alcohol, castor, resin oil, etc., are thus discovered, while Mowrah and Karité oils give a milky turbidity to the alcoholic stratum.

Second operation: Five c.c. of the neutralised cocoonut oil are measured with a pipette into a graduated test tube, and 10 c.c. absolute alcohol added. The temperature is raised to 31°, the tube shaken violently for half a minute and then immersed in a water bath, kept at a temperature slightly above that of the tube. Pure cocoonut oil dissolves completely, and the solution remains clear. Any addition of another fatty matter causes precipitation, the material in solution being in a state of molecular equilibrium which is destroyed by the slightest modification.

Cocoonut oil, containing palm kernel oil, precipitates when the proportion of the mixture amounts to 20 per cent.; below this the mass remains turbid.

The verification of palm kernel oil is made in the same manner, only using 20 c.c. absolute alcohol instead of 10, temperature remaining the same, 30-31°; 5 c.c. of palm kernel oil, containing 20 per cent. of cocoonut oil, and above, dissolves in 15 c.c. absolute alcohol. In the same proportions pure oil does not dissolve, and the mixture remains turbid.

A mixture of cocoonut, palm kernel, and peanut oil in such proportions that the oil would appear pure by the indices of saturation would be easily discovered by this process.

If we work at a lower temperature the proportion of absolute alcohol must be increased. For example, at 25-26° it is necessary to double the quantity; for 5 c.c. of cocoonut oil, 20 c.c. of alcohol, and for the palm kernel nut, 40 c.c.

The same method may be used to determine the purity of cocoonut and palm kernel cakes by first extracting the oil by means of a solvent and then operating on it in the manner described.

This process, which I have had the honour to describe, carefully executed will allow us to determine in a few minutes adulterations of these oils which might cause bad results in soap making, which employs hundreds of millions of kilograms per annum, and in agriculture which uses the cakes for cattle food. This process was presented to the Academy of Sciences in 1892 by M. L. Troost, and has been the object of a favourable report to the Minister of Agriculture.

Let us pass rapidly over palm oil, whose principal chemical properties possess nothing in particular except its partial solubility in absolute alcohol, which is 10 per cent. Also, we will pass over the Mowrah, which, as I have already mentioned, is identified by the milky white turbidity which it communicates to alcohol by shaking.

Illepe oil, whose titer is 52.5°, and cotton-seed margarine or stearine, as it is called here, whose chemical reactions are the same as the oil itself, will not long detain us.

I wish to mention, while closing the description of the solid vegetable oils, Karité oil, which comes from the French province Soudan, which I have been especially directed to investigate by the Chamber of Commerce of Paris, and the Chamber of the Syndicate for the manufacture of soap and candles.

It was very important to know how to utilise the great forest which covered the largest part of French Soudan. It is composed chiefly of the wild acacia and the Karité or butter tree. The natives collect the nuts which fall from the trees, crush the kernels in a mortar, treat the pasty mass with boiling water, and skim off the fat which comes to the surface. This fat, which is solid at the ordinary temperature, is used as an edible butter.

Without speaking about the great uses to civilisation of this product, I must mention its remarkable chemical properties. The fatty acids having a titer of 52.5°C., combine with soda to produce an extremely hard soap. For candle making they would probably give better results after preliminary treatment to remove the resinoid matters which they contain, and which hinder the crystallisation of the fatty acids.

The presence of these resins lower the saturation to 14.9, and, like the Mowrah, this oil causes turbidity by shaking with alcohol.

SOLID ANIMAL FATS, COLOURED BROWN BY A STREAM OF CHLORINE GAS.

Butter.—The analysis of this material, which has attracted so much attention during the last few years, is not so difficult as some folks imagine, but requires to be carried on by the skill of a practical and experienced analyst. The specific gravity of butter is notably lower than that of tallow and lard. It is the same with the iodine number and the freezing point of the neutral fat. The saponification and the solubility in absolute alcohol on the contrary are notably higher.

We can combine with these different characters microscopical examination, melted butters showing under the microscope a collection of small regular spheres. Adulterated butter shows on the contrary abnormal figures as well as crystals which appear brilliant in the dark field of the polariser.

By determining the fixed and volatile fatty acids and the solubility in alcoholic toluene, a skilled analyst familiar with these processes can easily determine admixtures above ten per cent. Below this point I do not believe any adulteration would be profitable. Natural butter contains about eleven per cent. soluble and volatile fatty acids, and eighty-seven per cent. fixed fatty acids. Besides, alcoholic toluene dissolves it almost entirely.

Tallow.—The properties of tallow are so well known that they require no description. The distinction between beef and mutton tallow is a matter of interest, and presents great difficulties from the chemical standpoint, and we can only observe differences by taking the melting and solidifying points of the neutral fat and those of the fatty acids.

Lard.—Lard adulterated with cotton-seed oil is easily tested with nitrate of silver.

If the lard has been altered by time or other causes, it is necessary before using this reagent upon the fatty acids to take the precaution of purifying the fat in the manner in which I have indicated at the beginning of this article. We will thus avoid the slight reduction which is produced by decomposition products.

Some authors strongly believe in the use of the iodine number, which will give good results in the cases of large admixtures, as well as for quantitative analysis of such a mixture. But it is quite illusory for the detection of a small proportion of cotton-seed oil, for we must consider that the iodine number of pure lard varies within considerable limits, and it would be possible to correct for the high iodine number of cotton-seed oil by the addition of tallow, which will lower it appreciably.

such a mixture the action of nitrate of silver on the fatty acids allows to discover adulteration even below five per cent. Tallow is detected by observing the crystallisation of the fat from ethereal solution under microscope.

The following oils, which frequently are used for the adulteration of cultural fatty materials, are easily detected:—

Castor Oil.—By its iodine number, its solubility in absolute alcohol, presence of cholesterine, and finally the brown colouration by time and red by caustic soda and phosphoric acid.

Essential Oils.—By their density, their saturation, their solubility in absolute alcohol, and the deviation of the plane of polarization. Besides, easy to isolate them, because the majority of compounds which form with metallic salts are soluble in ether, while those of the acids are insoluble.

Mineral Oils.—By their property of not saponifying with caustic soda as well as by their insolubility in glacial acetic acid, and the characteristic purple colouration which they give with fuming stannic chloride.

Light Oil of Commerce.—By its solubility in alcohol and by its specific gravity.

Finally, the **Mineral Oils**, by their iodine numbers, their indifference to the action of caustic soda, and their insolubility in absolute alcohol at 5° C.

The processes which I have just enumerated are applicable indistinctly to fatty matters both edible and industrial, for the recognition of their purity with an approximation sufficient for the majority of cases.

The results obtained will be more conclusive if they are compared with those from products of the same origin and known purity.

Although the majority of the processes which I have just indicated have been devised and perfected in my laboratory, and have been adopted by several Governments, I have not, however, the presumption to feel that we have definitely finished this question, but consider on the contrary that in the vast unexplored region of the fatty series we have only taken a few steps. But I feel at the same time that we are now in possession of sensitive and scientific methods which permit us to detect mixtures, the determination of which has appeared impossible in the last few years.

The mission with which I have been charged by the French and Italian governments at the demands of commerce and industry shows to what extent these countries are desirous of facilitating the exportation of pure and satisfactory products. France furnishes the best oil of virgin olive oil from Aix en Provence and Nice. On its side Italy furnishes as well, but at a less price, olive oils of excellent quality which we can certify without analysis, because the Government imposes such heavy export and import duties upon seed and seed oils that it would be impossible to practice the smallest amount of sophistication.

Often people who deal in olive oils make the remark that pure oil is so strong and it is improved in flavour by a mixture with a seed oil. Without discussing this inexact statement I believe that it would be verifiable in every instance for the dealer to buy pure olive oil and to mix his own mixtures. He would thus profit by the difference in price, which averages about sixty francs per 100 kilograms.—*Four. Chem. Soc.*

THE GAS SUPPLY OF LONDON.

THE quality of the gas supplied to the City of London for the week ending November 18th, 1893, was good. According to the report of Mr. W. J. Dibdin, chemist and superintendent gas examiner to the London County Council, the tests made at various testing stations showed no deficiencies in illuminating power. The following figures have been prepared from the report, and show the average composition of the gas calculated on a mean test:—

Company.	No. of districts tested.	Illuminating power (in stand. sperm candles).	Sulphur. Grains in 100 cb. ft.	Ammonia. Grains in 100 cb. ft.	Sulphuretted Hydrogen
		Mean average.	Mean average.	Mean average.	
Light and Coke Co.	12	16'50	11'08	0'27	Nil.
Metropolitan Gas	6	16'60	11'71	0'38	Nil.
Commercial Gas Co.	2	16'55	8'90	0'50	Nil.

The standard gas supplied by these companies should have an illuminating power of 16 sperm candles, and contain not more than 22 grains of sulphur and 4 grains of ammonia per 100 cub. ft. of gas, on an average of three days, with a pressure of one inch between sunset and midnight, and six-tenths of an inch between midnight and sunset.

Selected Correspondence.

SUBSIDENCES IN THE SALT DISTRICTS.

To the Editor of the Manchester Guardian.

SIR,—The decision of the Cheshire County Council to support the policy of the Northwich Local Board, asking, after years of costly investigations, the Local Government Board to constitute the whole of Cheshire one compensation district under the Subsidence Act of 1891, is deeply to be regretted, as it opens up a matter which has already produced the following results:—1. It has caused the Act of 1891 to be "a dead letter." 2. It has prevented property owners having the compensation Parliament intended they should have. 3. It has caused protracted fights that involved enormous expenditure to all parties concerned, without benefiting property owners a penny piece. 4. It has caused the Local Government Board to have the rare experience of having "the confirmation" of one of its "provisional orders" refused by the House of Commons, it being abundantly proved in Committee that Northwich is distinct from (a) natural causes, the top rock salt, on which the brine rests, not being continuous; (b) artificial causes, the salt at Winsford being wholly made from "natural brine," a strictly limited quantity being dependent upon natural absorption, while at Northwich nearly all the salt (and alkali manufactured direct from brine) is made from excavation brine pumped out of old mines, of which the quantity is practically unlimited for a long time to come; and (c) commercial causes, Winsford being wholly dependent on the salt trade, which is exceedingly depressed; while Northwich has many other trades and the most successful alkali trade in the world. The proposal that the Cheshire County Council support is a scheme for getting the Winsford salt trade to pay part of the damages caused by the Northwich brine pumpers, and is thoroughly unjust.—Yours, &c.,

C. E. DE RANCE, F.G.S.

ANSWERS TO CORRESPONDENTS.

W. M.—This week. We are always glad to receive such information.

B. BROS.—Next week.

B. AND T.—Will write you shortly.

E. S. V.—Prices are given in the Tyne Market Report.

R. D. AND T.—Early in January is the usual time.

D. S. W. (Bernburg).—They will be included in future, since it will be the only source from which they can be obtained.

S. M. AND CO.—It has been sent all right.

A. S.—We have made a note of the facts.

H. B. (Frankfort).—Not as a rule, but have done so in present case.

NOTICES.

LONDON AGENTS

Booksellers and Newsagents may now obtain supplies of
THE CHEMICAL TRADE JOURNAL

From

MR. JOHN HEYWOOD,

2, Amen Corner,

Paternoster Row, E.C.,

On usual trade terms.

DESTRUCTIVE FIRE AT A PAPER MILL.—The *Hallesche Zeitung* reports that a serious fire occurred recently at the Krvellivitz Paper Mills, near Halle. A portion of the building was destroyed, the damage being estimated at 60,000 marks.

SOCIETY OF CHEMICAL INDUSTRY. Liverpool Section.—A meeting of this section will be held on Wednesday next at the chemical laboratories, University College, Liverpool, at 7-30 p.m., when papers will be read by Dr. F. Hurter on "The Comparative Efficiency of Absorbing Apparatus" (Reply by Dr. Lunge); and by Mr. Dagger on "Aluminium Alloys." Tea will be served in the museum at 7 p.m.

STEALING GAS.—Recently, at a London police-court, J. Ford was charged with stealing gas from the South Metropolitan Gas and Coke Company. In October last some of the company's men were at work in the next house, and Mrs. Ford, who evidently knew nothing of the theft her husband was practising, called them in to look at her gas fittings. They then discovered that a gas-pipe had been attached to the pipe communicating with the main, so that gas was carried to the burners without passing through the meter. Mr. Wilkinson having addressed the Court on behalf of the prisoner, he was sentenced to ten weeks' imprisonment with hard labour.

THE LIVERPOOL POPULAR CHEMISTRY LECTURES.

THE course of Penny Technical Lectures to working-men, on "Chemistry in Relation to Every-Day Industries," given by Dr. Charles A. Kohn, at University College, Liverpool, has been continued during the past weeks. The fourth lecture of the series was on "Soap," and treated of the chemical nature of the substances that enter into the manufacture of soap, of the processes concerned in the manufacture itself, and of the typical differences in the ordinary soaps of commerce. In the succeeding lecture on "Vinegar and Acetic Acid," the lecturer dealt with the preparation of acetic acid by the destructive distillation of wood, the purification of the crude acid, and the properties and uses, both of the acid and its salts. The nature of acetic fermentation and its relation to the preparation of vinegar from wine, malt, and by the "quick vinegar process" were subsequently considered. "Sugar" was the subject of the next lecture, the preparation of which both from the sugar-cane and from beet-root were detailed with special reference to the refining processes employed. The last lecture delivered was on "Coal Tar," in which the relation of the tar industry to that of coal gas was considered, and the method of working up the tar dealt with. The use of the light oils and anthracene oils for the preparation of the coal-tar colours was left for consideration in the succeeding lecture, whilst the uses of the products derived from the other portions of the tar—carbolic acid, creosote oils, and pitch, was referred to—especially in relation to the creosoting of timber and the manufacture of lamp-black. The concluding lectures will be on "Indigo" and the "The Alkaloids" respectively. The former will deal with the method of preparation and application of indigo—the latter with the sources and characteristic properties of the more important alkaloids, and also with such synthetically prepared drugs as antipyrin, and allied drugs.

During the course, which has been very well attended, two sets of questions have been given, and a prize offered for the best set of answers sent in.

WHERE COTTONSEED OIL GOES.

THE disposal of the immense output of cottonseed oil will interest those who are not familiar with this rapidly growing industry and the many uses that have been found for this most useful of all vegetable oils.

The question is frequently asked, "What is cottonseed oil used for?" Last year there were probably 1,250,000 tons of seed crushed. Out of this seed there were obtained about 1,000,000 barrels of oil.

At Chicago not less than 300,000 barrels are used for making lard. At St. Louis, Kansas City, and Omaha about 200,000 barrels are used in making lard.

The lard is made by mixing beef suet with cottonseed oil, the degree of hardness of the product being determined by the relative proportions of the oil and suet. It is notable that in much of the lard there is no hog product at all.

About 20,000 barrels are used on the coast of Maine to pack sardines.

Probably 50,000 to 100,000 barrels are used by the soap-makers for making toilet soaps.

Some 200,000 to 300,000 barrels go to Rotterdam, Holland, for making butter. Large quantities go to Marseilles, France; Trieste, Austria; and various points on the Mediterranean coast, especially in Italy, for mixing with olive oil.

The poorer grades are used for illuminating purposes in mines, as a lubricant in cutting threads on pipes and bolts, and other purposes.

It is not a good lubricating oil, because it contains too much gum. Much money has been expended trying to find a process of refining that will eliminate the gum.

Of late years much oil has been shipped to Mexico and South America. In these Latin countries it is used as a cooking grease, without the necessity of disguising it as lard by using beef suet with it. In fact, most of the people of the earth prefer a clean vegetable oil for cooking to American fats. The Anglo-Saxons and Germans are notable exceptions.

Its use in an unadulterated condition in America as a cooking grease is rapidly increasing, especially in Texas and New England. All the restaurants in Houston, Galveston, and other south-western cities, and in Boston, Providence, and other New England cities, keep pure refined cotton oil on hand at all times. In Boston the physicians uniformly prescribe food cooked in cotton oil as a remedy for indigestion, and the idea has grown very popular, especially in Boston and the adjacent towns and cities.—*Charlotte Observer*.

THE CHALONER TESTIMONIAL.—The presentation of this testimonial, which is to take the shape of a purse and illuminated address, will take place at the Birkbeck Institution on the 11th inst.

Trade Notes.

SALVAGE OF AN OIL STEAMER.—The Anglo-American steamer Delaware, with a valuable cargo of oil in bulk, was into Queenstown Harbour on Saturday last by the Wilson liner which had picked her up disabled nearly a thousand miles off Atlantic, and towed her for eight days.

DU MAURIER AS A SCIENTIST.—It is not generally known that Maurier, the gifted artist, whose sketches in *Punch* are so well known, was intended for a scientific career, and studied for that at University College in the chemical laboratory. He had, however, under pathetic circumstances, however, to abandon his studies and become an artist.

ANILINE MANUFACTURE IN POLAND.—There are two factories in Russian Poland, which, however, only produce aniline, nearly all of the usual trade demand being met by Germany. In ultramarine and chemical dyes, home factories come into the market, only specially fine qualities being obtained from Austria. The manufacture of earth colours has made considerable progress.

PATTERNS AND SAMPLES FOR JAPAN.—An agreement between the Postmaster-General and the Minister of State for Commerce of Japan for increasing the limit of weight of patterns or samples of merchandise exchanged through the post office between the British colonies and possessions (except India, Canada, Australian colonies) and Japan has just been issued as a Parliamentary paper. The limit of weight of such packets is now increased from 100 grammes to 350 grammes. This agreement has been in effect since July 1st last.

PERSONAL.—Sir Henry Doulton has presented to the City of Chicago as a memento of the World's Fair, the terra-cotta replica of John Bell's well-known group of America at the Albert Memorial, in Hyde Park. Mr. Harrison, the Mayor of Chicago, sent Sir Henry a cordial letter of acknowledgment, which must have been one of the last acts of his official life. Mr. Woodward, of the Birmingham Midland Institute, has, we are informed, succeeded Mr. Chaloner, at the Birkbeck Institute.

PAPER FROM SUNFLOWER STALKS.—The paper mill at Kan., U.S.A., has made from sunflower stalks several tons of paper. The paper is regarded as superior to straw paper, and is a great departure in paper making and sunflower industries. The mill is now buying sunflowers, and proposes to make sunflower paper a specialty. This may be expected to lead to the cultivation of this plant, and sunflower seed oil may be produced in quantities sufficient to make it an important article of commerce.

A PAINT WORKS ON FIRE.—About three o'clock last morning a railway official on duty at the Newton siding of the Great Northern and Yorkshire Railway discovered that the paint works of Messrs. Williams and Company, Lower Tebbutt-street, Rochdale, were on fire. The news was quickly conveyed to Goulburn Station, and in a very short space of time a detachment of firemen arrived at the scene of the fire. Jets were speedily got to work, and the fire was extinguished before any great damage had been done. The inflammable nature of the goods stored in the works and the proximity to the Rochdale-road Gas Works, fears were naturally entertained by residents in the neighbourhood that the outbreak might lead to most serious consequences, but, as stated, this anticipation was fortunately not borne out. A large quantity of hot coke from the works had been stored in the yard of Messrs. Williams and Company, and it is supposed that this had set fire to some of the goods.

MARGARINE FOR BUTTER.—On Monday at Wigan, Messrs. Williams, provision merchant, Market Hall, was summoned for selling margarine in a wrapper not marked; for selling margarine and for exposing margarine for sale without the necessary label attached.—The Town Clerk prosecuted and applied for the full of £100, as the defendant had been summoned several times, fine being £20. and costs.—Elizabeth Brown proved buying the margarine and further evidence was also given by Inspector Sumner, assistant.—The defendant stated that there was no intent to deceive his part. Persons came into his shop and, although they desired margarine, they always asked for butter. He would call on the employés who served the butter, and he would tell the Bench that he had given instructions to his servants to comply in every detail. Act. This witness was a very honest and careful man, and during the time that he had been with him had handled no less than £100,000 of money without any check.—Witness then bore out the defendant's statement.—After a lengthy deliberation in private the Bench fined the defendant £5. and costs for the first offence, and £20. and costs under each of the other two charges, a total fine of £45. and costs.

Market Reports.

TAR AND AMMONIA PRODUCTS.

The Benzol Market is still flat, and the toluol product fetching more than the benzol portions of the distillate. Solvent naphtha is also in good demand. Creosote is easier, and anthracene quiet, while pitch is hardening slowly and surely, 28s. 6d. being to-day's value at all ports.

After several days of lassitude and a corresponding attempt on the part of "bear" speculators to force down prices without avail, the position has again asserted itself, and prices are steadily moving upwards. There are now buyers at £13. 12s. 6d. and at £13. 1s. for January-April delivery, but there is very little offering in both positions. Many consumers are still standing off, not being able to realise the absolute strength of the market. The Scotch strike is making deliveries in the North uncertain, and this fact may further improve values.

THE METAL MARKET.

LONDON, WEDNESDAY.—Pig iron dull. Scotch warrants closed at 43s. 4½d., Middlesbrough 35s. cash, and hematite 45s. Copper, easier: Chili bars, G.O.B.'s and G.M.B.'s, closed at £42. 16s. 3d. to £43. 3s. 9d. cash, and £43 7s. 6d. to £43. 15s. three months. Tin, steady: Straits closed at £75. 7s. 6d. to £75. 17s. 6d. cash, and £76. 7s. 6d. to £76. 17s. 6d. three months; Australian, £76.; English ingots, £79. to £80. Lead, quiet: Spanish, £9. 11s. 3d.; English, £9. 12s. 6d. to £9. 17s. 6d. Silesian spelter: ordinary, £17. 1s. 3d. to £17. 2s. 6d. Nickel, 1s. 7½d. Antimony, £37. 10s. Quicksilver: First hands, £6. 7s. 6d.; second hands, £6. 7s. Copper shares, firm: Cape, 1½ to 1½. Copiapo, 1½ to 2½. Libiola, 2½ to 3½. Mason and Barry, 1½ to 1½. Rio Tinto, 14½ to 15. Tharsis, 4½ to 5.

REPORT ON MANURE MATERIAL.

There has been a fair amount of business passing during the week, without much alteration in prices.

There is still demand for 75/80% Florida phosphate rock for the Continent, but U.K. buyers do not seem inclined to cover their requirements further ahead. For Mediterranean and Baltic 9d. is the nearest value, for ports between Havre and Hamburg 8¾d., and for good U.K. ports 8½d., c. f. & i., 1894 shipment. The position of Peace River and South Carolina River rocks is unchanged.

Since sales for Mersey of one very large cargo, at £4. 11s. 3d., and a small one at £4. 13s. for shipment, there is nothing to report in River Plate bones. For anything of handy size near at hand, £4. 15s. would probably be paid. Crushed Kurrachee bones, January/February steamer shipment, selling at £4. 15s. to Liverpool and Hull, and this price asked for crushed Calcuttas without finding buyers. Nothing on spot. Sales of Kurrachee bone meal have been made for shipment at £4. 15s., and at the close there are buyers at the price. Nothing doing in Bombay bone meal for shipment. The value is about £4. 16s. 3d. on spot, £4. 18s. 9d. paid for Bombay and Rangoon. Good charring bones are worth £4. 10s. to £4. 12s. 6d., and common grinders about £4. 7s. 6d. ex quay, Liverpool.

Nitrate of soda is quiet on spot, but there is rather more doing in cargoes afloat. On spot the value is 9s. for ordinary quality, and 9s. 1½d. per cwt. for fine. Due cargoes are worth 8s. 10½d. per cwt., and October/November shipments about 9s. 1½d.

There is nothing to report in miscellaneous manure material.

MISCELLANEOUS CHEMICAL MARKET.

Trade generally continues quiet, and there is nothing new to report. Bleaching powder is in good request both for home and export. Prices to-day are £8. 2s. 6d. to £8. 5s., rails, softwood, and £8. 7s. 6d. to £8. 10s. for hardwoods, f.o.b. Caustic soda still moves briskly at former prices, viz: f.o.b. Tyne, 77%, £12.; f.o.b. Liverpool, 74%, £11. 10s.; 70%, £10. 15s.; 60%, £9. 15s.; cream, 60%, £9. 10s., 10-ton lots and upwards. The Lancashire works are not yet in a position to deliver, and as a consequence the supply of both bleach and caustic for spot delivery is very limited. Soda ash is firm in price, but there is no large amount of business doing. Saltcake unchanged. Chlorate of potash rather firmer, but is still offered by sellers at 8d. Soda quiet at 9¾d. Nitrate of soda steady, and has more inquiry: prices range from 9s. 1½d. to 9s. 4½d. per cwt. Sulphate of copper weak at £15. 15s. to £16. f.o.b. Litharge difficult to sell, £13. is about value to day. Foreign white acetate of lead slow of sale at former price. Acetates of lime continue in good demand for prompt

delivery, and prices are firm—brown £7, grey £11., per ton. Acetate of soda £16. White powdered arsenic does not move so readily, but price is firm at £13. 5s., Garston. Sulphuric and muriatic acids sell quickly at good prices. Recovered sulphur is still depressed in price, owing to the low rates at which the foreign article is being offered. Carbonate and caustic potash firm and in good request, prices unchanged. Prussiate of potash weak, at 6½d. to 8½d.; soda, 6¼d. to 6¾d.

TYNE CHEMICAL REPORT.

TUESDAY.

Chemicals quiet. Caustic soda rather lower in price. 70%, £9. 15s.; 76%/77% £11. 10s.; the latter strength is extremely scarce. Bleaching powder, £7. 15s. to £8. 5s., according to market. Sulphur unaltered at £4. 5s. per ton.

Bleaching powder, softs, £8. 5s. per ton, nett; hards, £8. 10s. per ton, nett; caustic soda, 76/77%, £11. 10s. per ton, nett; 70%, £9. 15s. per ton, nett; recovered sulphur, 2 cwt. bags, £4. 5s. per ton, nett; soda ash, 48%, £3. 15s. per ton, 52%, £4. 2s. 6d. per ton, 56%, £4. 10s. per ton, nett; alkali, 36%, £3. per ton, nett; white alkali, 48%, £4. 10s. per ton, 50%, £4. 15s. per ton, 52%, £5. per ton, nett; hyposulphite of soda, in 5-7 cwt. casks, £7. per ton, ditto, in 1 cwt. kegs, £7. 15s. per ton, nett; silicate of soda, 75° Tw., £2. 15s. per ton, 100° Tw., £3. per ton, 140° Tw., £3. 17s. 6d. per ton, nett; soda crystals, in casks, £2. 10s. per ton gross weight, in 2 cwt. bags, £2. 10s. per ton nett weight; chlorate of potash, 8½d. per lb. less 6%; pearl hardening £3. per ton, nett; pure white sulphate of alumina, £4. 2s. 6d. per ton, nett; blanc fixe, £7. 10s. per ton, nett; chloride of barium, £7. 10s. per ton, nett; carbonate of alumina, £28. 15s. per ton, nett; aluminate of soda, £33. 15s. per ton, nett; in 5 ton lots, £28. 10s. per ton, nett; hydrate of barium, £10. per ton, nett.

South Durham Salt: Unaltered at 9s. 6d. per ton f.o.b., Tees.

Coals: Trade generally is steadier, there being a large influx of steamers. There is also a probability that some demand will have to be met from Scotland; the fall in prices is thus momentarily checked. Approximate quotations are: Best Northumbrian steam, 13s. per ton; small steam, 5s. 6d. to 6s. per ton; bunker coals in good demand, 10s. to 10s. 6d. per ton; gas coals very firm, 11s. 6d. to 12s. 6d. per ton; coke steady, at 16s. per ton.

LIVERPOOL OIL AND COLOUR MARKET.

WEDNESDAY.

OILS.—Palm oil is moving fairly well. Lagos is quiet at £24. 15s. Saltpond, has been selling at £22. per ton, and Benin at £23. 2s. 6d. Olive is in better demand and a pretty smart spot business has been doing to-day at full prices. Linseed has been rather variable in price during the week, but is, to-day, quietly steady at 21s. 3d. to 22s. cwt., for Lixerpool refined, in export casks. Cottonseed is easy at 21s. 6d. to 23s. cwt. for Liverpool refined. Castor oil is firm, price of good seconds Calcutta has hardened, and 2½d. is to-day's value 2½d. per lb. Tallow is firm, with a fairly good business doing. Resin: common has a good enquiry at 3s. 9d. to 3s. 10½d. per cwt. Spirits of turpentine, though steady at 22s. 6d. cwt., are rather quiet. Petroleum is steady in price, and in fairly good request, with American 4¼d. to 5¼d., and Russian refined 3¾d. per gallon.

COLOURS are steady without alteration in prices. Ochres: Oxfordshire, common, £10., medium, £12., best, £15.; Derbyshire, common, 40s.; medium, 50s., best, 60s.; Welsh, best, 70s., seconds, 50s., and common, 18s.; Irish, Devonshire, 40s. to 45s.; French, J.C., 55s. to 60s.; M.C., 65s. to 67s. 6d. Umber: Turkish quiet; Devonshire, 50s. to 55s. White lead, red lead, and oxide of zinc unchanged. Venetian red, £6. 10s. to £10. Cobalt: Prepared oxide, 9s. 9d.; black, 9s.; blue, 6s. Zaffres: No. 1, 3s. 6d.; No. 2, 2s. 6d. Oxide of iron: Common, £6.; medium, £10.; finest, £20. Zinc oxide, £23. to £25.

WEST OF SCOTLAND CHEMICALS.

GLASGOW, TUESDAY.

With the possibility of a coal famine here, as lately in England, markets are disorganised and quotations unreliable. Scotch miners last week put in a demand for an advance, which most masters refuse up to now, and stoppage of pit production has been the rule. If both hold out, manufacturers will perforce shut up their works very generally; some of the blast furnaces are already damped out.

There is on report an improved demand for soda crystals with higher quotations, but the feeling in bleaching powder leans to the other side, and quotations are less firm. Chlorate of potash is dearer.

Sulphate of ammonia, strong in any case, has received greatly increased firmness on the outbreak of the coal war in Scotland. At the close of last week £13. 12s. 6d. spot, Leith, was the figure at which business was done, and it stands so nominally to-day, but if the coal

dispute is not arranged at once, it may go up any height for immediate delivery. In this contingency all the mineral oil works will close their doors, and these are the chief producers of sulphate here. Oils and paraffins, also will necessarily become practically unobtainable.

Chief prices current are:—Soda crystals £2. 15s. nett, Tyne; soda ash £3. 17s. 6d. nett, Tyne; white alkali 48/52° £4. 10s. to £5. nett, Tyne; alum in lump £5. nett, Glasgow; caustic soda, white, 74° £11. 10s., 70/72° £10. 15s., 60/62° £9. 15s., and cream 60/62° £9. 10s.; all nett, Liverpool; bleaching powder £7. 15s. to £8. nett, Tyne; saltcake, 22s. 6d.; borax, English refined, £30., and boracic acid, £37. 10s. nett, Glasgow; bicarbonate of soda, 5-cwt. casks, £6. 15s., and 1 cwt. casks £7. nett, Liverpool; bichromate of potash, 4½d. nett, for Scotch and English deliveries (for export, 4½d. nett, f.o.b. Glasgow); bichromate of soda, 3¼d. nett, for Scotch and English deliveries (for export, 3¼d. nett, f.o.b. Glasgow); chlorate of potash, 8¼d. less 5% Liverpool; nitrate of soda, 9s. 4½d.; sulphate of ammonia, £13. 12s. 6d. prompt, f.o.b. Leith; sal ammoniac, first and second white, £37. and £35. less 2½% any port; sulphate of copper, £15. 15s. less 5% Liverpool; paraffin scale, hard and soft, 1½d. per lb.; paraffin wax 120° semi-refined 2½d.; paraffin spirit (naphtha) 4½d. per gallon; paraffin oil, burning, standard No. 1 grade, 5d. to 5¼d. per gallon at works, for Scotch buyers (English sales ¾d. to ¾d. lower); ditto (lubricating) 865° £4. 7s. 6d. to £4. 10s., 885° £4. to £5. 10s., and 890/895° £5. to £6. Week's imports of raw sugar at Greenock were nil.

HULL PAINT, OIL, AND COLOUR REPORT.

TUESDAY.

OILS.—Business, generally, is without animation, still the situation is improved, and coal cheaper. The greatest drawback to any great volume of business being cheaper forward quotations, and no great present demand. The imports up to date of this year, compared with the same time last year being—Olive oil, 8,629 tons against 11,784 tons; rape oil, 6,443 casks against 7,886 casks; tallow, 37,286 cwt. against 29,711 cwt.; turpentine, 14,615 barrels against 19,213 barrels; linseed, 416,078 qrs. against 538,467 qrs.; rapeseed, 74,845 qrs. against 75,350 qrs.; cottonseed, 148,207 tons against 189,185 tons, these differences being Hull's contribution to the general disorganisation of business during the year. Linseed oil is firm at 19s. 6d. naked, spot, or month, December, 19s. 3d., and January-April, 19s. 1½d.; May-August, 19s. 4½d., buyers, the export for the week being 1,294 cwt. against 1,322 cwt. for the same time a year ago. Refined cotton oil about 10s. per ton lower, closing steady at 19s. 6d. naked spot, month was quoted 19s. 3d., and December-April, 18s. 7½d. The export for the week were 4,582 cwt. against 6,817 cwt. for the same time a year ago. Cod oil, Hull make, is very scarce, yet there is no demand, consequently prices are not so firm, £17 to £19. per ton. Herring oil, £16. 10s. Sod oil, £15. to £17. Resin oil, £7. per ton. Anti-friction grease, from £6. per ton. Brown wool grease, £8. per ton. Engine oil, 1s. 3d. to 1s. 9d. per gallon. Cylinder oils from 1s. to 2s. per gallon.

CAKES.—Linseed cakes a quiet trade, but prices are steady, 95% pure, £8. 15s. per ton; ordinary, £7. 5s. to £7. 10s.; Russians, £8. 10s. Cotton cakes: Ready cakes are very scarce and dearer, best makes, £5. 7s. 6d. spot, and £5. December-April. Rape cakes: East India, £4. 15s.; Black Sea, £4. 5s. per ton.

PAINTS.—This trade continues quiet, and no change is anticipated until the New Year. The exports of painters' colours and chemicals each show an increase, the total of colours being 929 packages against 600 packages; and chemicals 3,472 packages against 1,321 packages compared with same week a year ago. The prices are without any alteration:—Oxide of zinc, £23. per ton. White and red leads unchanged. Oxide of iron, £9. to £18. Venetian red dry, £6. to £10. Oak varnish from 6s. per gallon. Common black varnish, £5. 10s. per ton in barrels. Ready mixed paints from £26. per ton.

New Companies.

English White Lead Company, Ltd. CAPITAL £30,000 shares of £1. each. This company has been formed to carry on business of manufacturers and dealers in white lead. The subscribers to the Memorandum of Association are:—H. Ross, 11, Queen Vic street, London, E.C., shareholder; J. Cocks, 19, Edgware-road, London, W., traveller; V. H. Cox, 8, Gordon-street, London, W.C., patent agent; H. H. A. Herwig, 10, Kings-road, Peckham, clerk; H. F. W. 188, Blomfield-terrace, Harrow-road, London, agent; M. A. J. mann, Mansion House Chambers, London, E.C.; E. W. Walker, Queen Victoria-street, London, E.C., accountant.

House's Cement and Anti-Crustator Company, Ltd. CAPITAL £1,500., in shares of £1. each. This company has been formed to acquire the business of cement and anti-crustator manufacture formerly carried on at Ripon and other places by F. House.

The Patent List.

This list is compiled from Official sources in the Manchester Technical Laboratory, under the immediate supervision of George E. Davis and Alfred R. Davis, who report professionally upon the value of Chemical Patents.

APPLICATIONS FOR ENGLISH LETTERS PATENT
Removing Boiler Scale and Preventing Incrustations. G. P. Gault, 21, 571. November 13.
Treating Composite Ores containing Zinc and Lead. D. M. McKee and A. McKechnie, 21, 582. November 13.
Improvements in Electrolysis and Apparatus therefor. W. A. Calver, 21, 611. November 13.
Improvements in Drainage Filtering Tanks. T. Cosham, November 14.
Production of Ozone and Luminosity. E. Andreoli, 21, 707. November 14.
Apparatus for the Manufacture of Various Extracts. B. J. B. 21, 729. November 14.
Pulverising Machinery. L. J. Seager, C. Seager, and J. F. Davis, November 15.
Manufacture of Soap. W. R. Dodd, 21, 849. November 15.
Production of Pyrocatechine. J. H. Baum, 21, 853. November 15.
Safety Cover for Protecting Gas Cylinders. A. Lupton, November 16.
Improvement in Cylinders for Storing Hydrogen, Oxygen, and Gases. A. Lupton, 21, 891. November 16.
Glass Apparatus for Concentrating, Distilling, or Evaporating. G. 21, 910. November 16.
Improvements in Liquid Fuel, and Means for Manufacture of F. E. Baron and C. C. Fry, 21, 926. November 16.
Treating Sludge to Obtain a Manurial Product therefrom. J. T. Dineen, 21, 931. November 17.
Safety Shield for Metallic Storage Cylinders, containing Liquefied Compressed Gases. A. Lupton, 21, 987. November 17.

Gazette Notices.

PARTNERSHIPS DISSOLVED.

F. M. SPENCE, D. D. SPENCE, and J. S. KIPPING, chemical manufacturers, Birmingham, under the style of Peter Spence and Co.

BANKRUPTCY ACTS, 1883 and 1890.

Receiving Orders.

TODRICK, ARCHIBALD, Vanbrugh-hill, Blackheath, S.E., Kent, trading as London Rubber Packing Company, Billiter-street, E.C.; also as Thompson and Co., Cross street, Deptford, S.E., india-rubber merchants.

WRIGHT, EDWARD WILLIAM BARTON, Factory-place, Ferry-street, Millwall late College-place, North Greenwich, S.E., and Gracechurch-street, antimony smelter, late carrying on business with James Woolford as Barton Wright and Co.

BRACKEN, THOS. HIRST, Harrogate, papermakers' agent.
HUGHES, ALFRED, Brentwood, oil and colourman.

Adjudications.

HENDEN, WILLIAM, Sidstrand, Norfolk, manufacturing chemist.
JAMES. ALEX. SHUCKNALL, Weston Beggard, Herefordshire, brick and tile manufacturer.

IMPORTS OF CHEMICAL PRODUCTS

AT

THE PRINCIPAL PORTS OF THE UNITED KINGDOM.

LONDON.

Week ending November 18th

Acetate of Lime—U. States, 198 pkgs. Lister & Biggs

Acetic Acid—Holland, 8 pkgs. Beresford & Co.

Alkali—

France, 330 c. Arnati & Harrison
" 207 P. Hecker & Co.

Alum—

Belgium, 24 pkgs. Hugh, Wallace, & Co.

Antimony—

Australia, 56 t. Coml. Lightgr. Co.

Arsenic—

Germany, 30 pkgs. Burgoyne & Co.

Asbestos—

Holland, £13 G. Rahn & Co.

Barium Chlorate—

Germany, 28 pkgs.
Holland, 13

Barytes—

Germany, 20 cks.

Belgium, 5 cks. J. L. Lyon & Co.	Tanner's Bark	Belgium, 28 t. Leach & Co.	Rosin—	U. States, 500 brls. F. & S. Chiesman & Co.	Borax—	Valparaiso, 33 sks. A. & S. Henry & Co.
" 46 W. Harrison & Co.	Turmeric	E. Indies, 500 pkgs. Prop. Sun Wf.	Germany, 6 H. Lambert	Germany, 110 brls. P. Hecker & Co.	Camphor—	Hamburg, 1 cks. 4 cs.
" 71 Burrell & Co.	Yalonia	A. Turkey, 10 t. Adam Bros.	Saltpetre—	Germany, 110 brls. P. Hecker & Co.	Castor Oil—	Marseilles, 30 cks.
Bleaching Powder—	Farina—	Germany, 100 pkgs. Seaward Bros.	Sodium Acetate—	France, 28 pkgs. H. Lorenz	Chemicals (otherwise undescribed)	Rouen, 20 cks. Co-op. W'sale Society, Ltd.
France, 46 pkgs. Mead, Son, & Co.	E. Indies, 1,600 Prop. Chamblin's Wf.	France, 20 J. Barber & Co.	" 28 Johnson & Hooper	Sodium Chlorate—	Boston, 6 bxs. J. Cassels	
Bromide of Iron—	Holland, 50		Sodium Chlorate—	France, 108 pkgs. A. Hughes	Colours—	Antwerp, 9 brls. J. T. Fletcher & Co.
Germany, 4 pkgs. A. & M. Zimmermann			Starch—	Germany, 300 pkgs. Seaward Bros.	Hamburg, 1 cks.	
Camphor—			Germany, 205 Philipps & Graves	Holland, 40	Ghent, 4 brs. J. T. Fletcher & Co.	
Japan, 213 lbs. L. & I. D. Jt. Co.			" 40 Barret, Tagant & Co.	" 332 C. J. Capes & Co.	Rotterdam, 15 cks.	
Germany, 1 cs.			Belgium, 174 Taylor Bros.	" 40 T. H. Lee	Cream of Tartar—	Barcelona, 3 bds. 10 cks.
Caoutchouc—			Germany, 4 Dunlop, Bros. & Co.	earine—	Dyestuffs—	Argols
N. Grenada, 3 c. Stiebel Bros.			France, 120 bgs. H. Hill & Sons	U. States, 152 cks. Williams, Torrey, & Co.	Oporto, 46 cks. German Bk of London	
C. America, 97 Price, Hickman, & Co.			France, 80 bgs. Walbaum & Tosetti	Germany, 5 cks. L. & I. Dk. Co.	Cochineal	Gr. Canary, 25 bgs. Brown, Bros., & Co.
E. Indies, 38 Butler's Wf., Ld.			Belgium, 101 bgs. H. Hill & Sons	" 38 C. S. Lovell	Cutch	New York, 250 bxs.
" 39 L. & I. D. Jt. Co.			Talc—	France, £50 Stobbs, Wilson & Co.	Extracts	Antwerp, 5 brls. J. T. Fletcher & Co.
P. E. Africa, 14			Tar—	N. Russia, 2,000 brls. Linck, Moeller & Co.	Trieste, 698	Oak Extract Co. 26 cks.
U. States, 15			Tartaric Acid—	Holland, 20 pkgs. B. & F. Wf. Co., Ltd.	Colon, 2,221 ps.	
Cape, 72			Terpene—	Germany, 6 pkgs. F. Stahl Schmid	Vera Cruz, 5,816 lbs.	
Zanzibar, 14			Toluidine—	Holland, 7 pkgs. J. Owen	Corfu, 14 t.	
" 24 S. Figgis & Co.			Turpentine—	N. Russia, 51 brls. Chiesman & Co.	Gambler	Singapore, 2,768 bls.
Denmark, 32 A. G. Libme & Co.			N. Russia, 3 dms. B. & F. Wf. Co., Ltd.	Ultramarine—	Myrabolams	Bombay, 557 bgs. D. Sassoon & Co.
U. States, 8 Pitt & Scott			" 52 brls. C. B. Leighton	Germany, 1 ck. Steinhoff, Sons & Co.	" 212	A. Salmon & Co.
France, 8 H. Johnson & Sons			White Lead—	Germany, 10 cks. Petri Bros.	Saffron	Valencia, 2 cs.
Madagascar, 3 Brookes & Green			" 22 Philipps & Graves	" 21 Randall Bros.	Shumac	Fiume, 125 bgs.
Greytown, 30 W. M. Smith & Sons			" 2 Spies Bros., & Co.	" 11 P. Jantzen	Dyestuffs (otherwise undescribed)	New York, 17 bxs.
Castor Oil—			Holland, 19 bls. N. J. Jenner & Co. Burrell & Co.	Zinc Oxide—	Ethyl Chloride—	In transit, 60 bgs.
France, 20 brls. J. T. Morton			Yarnish—	U. States, 4 pkgs. Allan Bros., & Co.	Farina—	Fiume, 50 bgs. C. T. Vander Veen & Bros.
" 12 Beresford & Co.			White Lead—	Germany, 10 cks. Petri Bros.	" 140	
" 12 F. V. Smythe & Co.			" 22 Philipps & Graves	" 21 Randall Bros.	Glucose—	New York, 152 brls.
Belgium, 50 10 cs. Fuerst Bros.			" 2 Spies Bros., & Co.	" 11 P. Jantzen	Rouen, 60 bgs. Co-op. W'sale Society, Ltd.	
" 12 Beresford & Co.			Holland, 19 bls. N. J. Jenner & Co. Burrell & Co.	Zinc Oxide—	Iodine—	Valparaiso, 91 brls. W. & J. Lockett
" 30 Burrell & Co.			Yarnish—	U. States, 4 pkgs. Allan Bros., & Co.	Limestone—	Rouen, 1 crt. R. J. Francis & Co.
Caustic Potash—			White Lead—	Germany, 10 cks. Petri Bros.	Manganese—	Kobe, 300 t.
France, 180 c. Beresford & Co.			" 22 Philipps & Graves	" 21 Randall Bros.	Mineral White—	Trieste, 100 bgs. Schroder & Co.
Caustic Soda—			" 2 Spies Bros., & Co.	" 11 P. Jantzen	Ochre—	Rouen, 43 cks. Co-op. W'sale Society, Ltd.
Holland, 110 c. Beresford & Co.			Holland, 19 bls. N. J. Jenner & Co. Burrell & Co.	Zinc Oxide—	Paint—	Boston, 40 cs.
Chemicals (otherwise undescribed)			Yarnish—	U. States, 4 pkgs. Allan Bros., & Co.	Paraffin Scale—	Philadelphia, 618 brls.
Germany, 106 pkgs. T. H. Lee			White Lead—	Germany, 10 cks. Petri Bros.	Baltimore, 577	
" 51 A. & M. Zimmermann			" 22 Philipps & Graves	" 21 Randall Bros.	Plumbago—	Genoa, 100 bgs. G. Huntriss & Co.
" 112 L. & I. D. Jt. Co.			" 2 Spies Bros., & Co.	" 11 P. Jantzen	Potashes—	Rouen, 9 cks. R. J. Francis & Co.
Holland, 13 pkgs. J. Owen			Holland, 19 bls. N. J. Jenner & Co. Burrell & Co.	Zinc Oxide—	" 51	Co-op. W'sale Society, Ltd.
" 5 Philipps & Graves			Yarnish—	U. States, 4 pkgs. Allan Bros., & Co.	Potash Salts—	Hamburg, 4,018 bgs.
" 8 J. Barber & Co.			White Lead—	Germany, 10 cks. Petri Bros.	Rosin—	Havre, 36 cs. Cunard S. S. Co., Ltd.
France, 46 B. & F. Wf. Co., Ltd.			" 22 Philipps & Graves	" 21 Randall Bros.		
Cream of Tartar—			" 2 Spies Bros., & Co.	" 11 P. Jantzen		
Spain, 25 pkgs. C. Christophersen			Holland, 19 bls. N. J. Jenner & Co. Burrell & Co.	Zinc Oxide—		
France, 5 F. C. Devon & Co.			Yarnish—	U. States, 4 pkgs. Allan Bros., & Co.		
" 44 Co-op. W'sale Society, Ltd.			White Lead—	Germany, 10 cks. Petri Bros.		
" 5 B. & F. Wf. Co., Ltd.			" 22 Philipps & Graves	" 21 Randall Bros.		
Spain, 2 cks. Middleton & Co.			" 2 Spies Bros., & Co.	" 11 P. Jantzen		
Holland, 40 kgs. Middleton & Co.			Holland, 19 bls. N. J. Jenner & Co. Burrell & Co.	Zinc Oxide—		
Dyestuffs—			Yarnish—	U. States, 4 pkgs. Allan Bros., & Co.		
Aniline			White Lead—	Germany, 10 cks. Petri Bros.		
Holland, 5 pkgs. J. Owen			" 22 Philipps & Graves	" 21 Randall Bros.		
Anatto			" 2 Spies Bros., & Co.	" 11 P. Jantzen		
France, 4 pkgs. Hurford & Middleton			Holland, 19 bls. N. J. Jenner & Co. Burrell & Co.	Zinc Oxide—		
Argols			Yarnish—	U. States, 4 pkgs. Allan Bros., & Co.		
Italy, 803 pkgs. B. Jacob & Sons			White Lead—	Germany, 10 cks. Petri Bros.		
Cutch			" 22 Philipps & Graves	" 21 Randall Bros.		
E. Indies, 500 pkgs. Ralli Bros.			" 2 Spies Bros., & Co.	" 11 P. Jantzen		
Extracts			Holland, 19 bls. N. J. Jenner & Co. Burrell & Co.	Zinc Oxide—		
France, 148 pkgs. Prop. Chamblin's Wf.			Yarnish—	U. States, 4 pkgs. Allan Bros., & Co.		
" 20 W. Burton & Sons			White Lead—	Germany, 10 cks. Petri Bros.		
Belgium, 75 T. H. Lee			" 22 Philipps & Graves	" 21 Randall Bros.		
" 50 cks. Leach & Co.			" 2 Spies Bros., & Co.	" 11 P. Jantzen		
Canada, 200 A. J. Humphrey			Holland, 19 bls. N. J. Jenner & Co. Burrell & Co.	Zinc Oxide—		
France, 20 pkgs. Beresford & Co.			Yarnish—	U. States, 4 pkgs. Allan Bros., & Co.		
U. States, 105 W. Burton & Sons			White Lead—	Germany, 10 cks. Petri Bros.		
Gambler			" 22 Philipps & Graves	" 21 Randall Bros.		
E. Indies, 441 pkgs. L. & I. D. Jt. Co.			" 2 Spies Bros., & Co.	" 11 P. Jantzen		
" 412 Brown & Elmslie			Holland, 19 bls. N. J. Jenner & Co. Burrell & Co.	Zinc Oxide—		
Indigo			Yarnish—	U. States, 4 pkgs. Allan Bros., & Co.		
" 84 cts. Forbes, Forbes, & Co.			White Lead—	Germany, 10 cks. Petri Bros.		
E. Indies, 81 Wallace Co.			" 22 Philipps & Graves	" 21 Randall Bros.		
" 43 L. & I. D. Jt. Co.			" 2 Spies Bros., & Co.	" 11 P. Jantzen		
" 79 P. Macfadyen & Co.			Holland, 19 bls. N. J. Jenner & Co. Burrell & Co.	Zinc Oxide—		
" 47 Croysdale & Co.			Yarnish—	U. States, 4 pkgs. Allan Bros., & Co.		
" 22 E. Bower & Co.			White Lead—	Germany, 10 cks. Petri Bros.		
" 4 Walker, Munzie & Co.			" 22 Philipps & Graves	" 21 Randall Bros.		
" 98 R. von Glehn & Sons			" 2 Spies Bros., & Co.	" 11 P. Jantzen		
Logwood			Holland, 19 bls. N. J. Jenner & Co. Burrell & Co.	Zinc Oxide—		
B. Honduras, 146 t. Belize Estate Co.			Yarnish—	U. States, 4 pkgs. Allan Bros., & Co.		
W. Indies, 350 Anderson, Anderson, & Co.			White Lead—	Germany, 10 cks. Petri Bros.		
Myrabolams			" 22 Philipps & Graves	" 21 Randall Bros.		
E. Indies, 667 pkgs. L. & I. D. Jt. Co.			" 2 Spies Bros., & Co.	" 11 P. Jantzen		
" 2,134 J. Graves			Holland, 19 bls. N. J. Jenner & Co. Burrell & Co.	Zinc Oxide—		
" 1,000 J. P. Alpe & Co.			Yarnish—	U. States, 4 pkgs. Allan Bros., & Co.		
" 200 G. & H. Green			White Lead—	Germany, 10 cks. Petri Bros.		
" 166 Clarke & Smith			" 22 Philipps & Graves	" 21 Randall Bros.		
Saffron			" 2 Spies Bros., & Co.	" 11 P. Jantzen		
Spain, 1 pkgs. B. & N. Wf. Co. Ltd.			Holland, 19 bls. N. J. Jenner & Co. Burrell & Co.	Zinc Oxide—		

LIVERPOOL.

Week ending November 16th.

Alumina Sulphate—	Rotterdam, 10 cks.	
Antimony—	Mollendo, 212 sks.	Brailard, Fils & Co.
Asbestos—	Montreal, 1 bg.	Allan, Bros. & Co.
"	" 20	Turner & Co.
"	374	Ehrenberg Langstaff
Barytes—	Antwerp, 24 cks. 50 bgs.	
Rotterdam, 17		

Saltpetre — Hamburg, 22 cks. 40 kgs.	
Soap — New York, 1 cs. Philadelphia, 633 pkgs. 30 crts.	
Soapstone — Fiume, 200 bgs. Philadelphia, 140	
Soda — Oporto, 9 cks. E. Leverkus & Co.	
Starch — Antwerp, 48 cs. J. T. Fletcher & Co.	
New York, 1 bg. Boston, 1,000 sks. Rotterdam, 550 crts. 150 cs. Baltimore, 1,800 bgs.	
Sulphuric Acid — Colon, 1 cs.	
Talc — Genoa, 50 bgs. Bordeaux, 245 G. G. Blackwell	
Tallow — New York, 200 tcs. 80 hds. Boston, 9 19 31 brls. Rouen, 139 bgs. R. J. Francis & Co.	
Tartar — Bordeaux, 16 cks.	
Tartaric Acid — Rotterdam, 3 cks.	
Ultramarine — Rotterdam, 20 cs.	
Waste Salt — Hamburg, 1,626 bgs.	
White Lead — Antwerp, 22 cks. Rotterdam, 36	
Zinc Oxide — Antwerp, 65 brls. J. T. Fletcher & Co.	
" 15 New York, 150 Marseilles, 54	
Zinc White — Rotterdam, 50 cks. O. & H. Marcus	

HULL.

Week ending November 18th.

Acetate — New York, 474 bgs. Wilson, Sons, & Co., Ltd.	
Acid — Hamburg, 20 cbys. Furley & Co. Rotterdam, 16 cks. W. & C. L. Ringrose	
Albumen — Riga, 7 cs. Wilson, Sons, & Co., Ltd.	
Barytes — Antwerp, 42 cks. 60 bgs. Bailey & Leatham	
" 70 Bremen, 38 Rotterdam, 58 Hutchinson & Son	
Chemicals (otherwise unclassified) Hamburg, 200 bgs. Wilson, Sons, & Co., Ltd.	
Danzig, 1 pkge. Antwerp, 125 pks. Wilson, Sons, & Co., Ltd.	
Dunkirk, 19 Bremen, 1 cs. Veltmann & Co.	
Chrome Alum — Rotterdam, 1 brl. Hutchinson & Son	
Caoutchouc — Havre, 29 cks. Cunard S. S. Co., Ltd.	
Colours — Flushing, 26 pks. G. Lawson & Sons	
" 3 cks. Brasch & Rothenstein	
Amsterdam, 1 pcl. W. & C. L. Ringrose	
Rotterdam, 1 cs. 27 6 44 pkgs. W. & C. L. Ringrose	
" 6 G. Lawson & Sons	
" 11 25 Hutchinson & Son	
Danzig, 11 Antwerp, 2 cks. Wilson, Sons, & Co., Ltd.	
Hamburg, 1 C. M. Lofthouse & Co.	

Bremen, 2 cs. Veltmann & Co.	
" 20 cks. Sissons Bros. & Co.	
Flushing, 2 4 Hutchinson & Son	
Dextrine — Stettin, 20 bgs. Wilson, Sons, & Co., Ltd.	
Dyestuffs — Alizarine Rotterdam, 3 cks. W. & C. L. Ringrose	
" 18 Hutchinson & Son	
Extracts New York, 100 brls. Wilson, Sons, & Co., Ltd.	
Madder Rotterdam, 1 ck. W. & C. L. Ringrose	
Farina — Stettin, 750 bgs. Wilson, Sons, & Co., Ltd.	
" 100 Harlingen, 1,540 Ghent, 172 Rotterdam, 20 Hamburg, 30	
Glucose — Hamburg, 100 bgs. A. C. Hornstedt & Co.	
Stettin, 100 Wilson, Sons, & Co., Ltd.	
" 300 10 cks.	
Guano — Antwerp, 359 bgs. E. Kipps & Co.	
Naphthol — Hamburg, 3 cks. Bailey & Leatham	
Paint — New York, 25 cs. Wilson, Sons, & Co., Ltd.	
Phosphorus — St. Petersburg, 60 cs. Bailey & Leatham	
Pitch — St. Petersburg, 80 cks.	
Rosin — Antwerp, 5 cks. Bailey & Leatham	
Saltpetre — Rotterdam, 135 bgs. Wilson, Sons, & Co., Ltd.	
Hamburg, 23 kgs. 2 cks.	
Soap — New York, 438 pkgs.	
Starch — Rotterdam, 40 cs. G. Lawson & Sons	
Bremen, 1,686 Veltmann & Co.	
Stearine — Antwerp, 13 bgs. Bailey & Leatham	
" 75 pks. Wilson, Sons, & Co., Ltd.	
Sulphate — Hamburg, 9 cks. G. Lawson & Sons	
Tallow — Rotterdam, 66 cks. W. & C. L. Ringrose	
Tar — Uleaborg, 2,065 brls.	
Tartar — Bordeaux, 2 cks. Rawson & Robinson	
Tartaric Acid — Rotterdam, 2 cks. Hutchinson & Son	
Ultramarine — Cologne, 1 ck. Todd & Son	
Rotterdam, 2 Storry, Smithson, & Co.	
" 4 W. S. Merrikin	
Varnish — New York, 13 brls. 25 pks. Wilson, Sons, & Co., Ltd.	
Waste Salt — Hamburg, 508 bgs. qty.	
White Lead — Cologne, 69 cks. T. F. Chambers & Co.	
Rotterdam, 10 Fewster & Co.	
" 10 Bailey & Leatham	
Antwerp, 111 Hutchinson & Son	
Zinc Ashes — Antwerp, 8 cks. Wilson, Sons, & Co., Ltd.	

Zinc Oxide — Rotterdam, 68 cks. Hutchinson & Son	
Zinc White — Cologne, 5 cks.	

GLASGOW.

Week ending November 23rd.

Alum — Hamburg, 107 cks.	
Aniline Oil — Rotterdam, 1 ck. J. Rankine & Son	
Arachide Oil — Rotterdam, 10 cks. J. Rankine & Son	
Barytes — Rotterdam, 24 cks. J. Rankine & Son	
" 46	
Bone Meal — Bombay, 3,000 bgs. Rotterdam, 101 J. Rankine & Son	
Castor Oil — Marseilles, 30 pkgs.	
Colours — Hamburg, 11 cks. Rotterdam, 9 4 bxs. J. Rankine & Son	
Amsterdam, 1 1 cs.	
Rotterdam, 20 pkgs.	
Cottonseed Oil — New York, 10 brls. Rotterdam, 5 J. Rankine & Son	
Cream of Tartar — Marseilles, 5 cks.	
Dyestuffs — Alizarine Rotterdam, 44 brls. J. Rankine & Son	
" 18 cks.	
Cutch Rangoon, 537 bxs.	
Madder Marseilles, 6 cks.	
Farina — Hamburg, 100 bgs.	
Glucose — New York, 50 brls.	
Lime — Hamburg, 20 bgs.	
Ochre — Marseilles, 7 cks.	
Paraffin Scale — Philadelphia, 400 brls. Rangoon, 1,650 bxs.	
Potash — Rotterdam, 33 cks. J. Rankine & Son	
Pyrites — Huelva, 1,701 t. Tharsis Co.	
Rosin — New York, 130 brls. Rotterdam, 26 cks. J. Rankine & Son	
Saltpetre — Hamburg, 40 cks.	
Soap — Philadelphia, 400 bxs. 26 crts. New York, 4 brls. 2 kgs. 1 bx. In transit, 2 cs. Marseilles, 50	
Soda — Rotterdam, 60 cks. J. Rankine & Son	
Starch — New York, 342 bgs. Montreal, 25 bxs.	
Sulphur Ore — Huelva, 1,900 t. Seville Sulphur & Copper Co., Ltd.	
Tannin — Hamburg, 1 cs.	
Tartaric Acid — Rotterdam, 3 cks. J. Rankine & Son	

Ultramarine — Hamburg, 6 cks.	
Waste Salt — Hamburg, 447 t. 1,620 bgs. all de.	
White Lead — Rotterdam, 208 cks. J. Rankine & Son	
Zinc White — Rotterdam, 200 cks. J. Rankine & Son	

TYNE.

Week ending November 18th.

Alum Earth — Hamburg, 18 cks. Tyne S. S. Co.	
Alumina Sulphate — Rotterdam, 6 cks. Tyne S. S. Co.	
Barytes — Antwerp, 5 bgs. Tyne S. S. Co.	
Castor Oil — Bergen, 3 brls.	
Colours — Hamburg, 1 ck. Tyne S. S. Co.	
Cryolite — Copenhagen, 2 cks.	
Phosphate — Antwerp, 220 t.	
Salt — Hamburg, 180 t.	
Saltpetre — Hamburg, 3 cks. Tyne S. S. Co.	
Starch — Rotterdam, 140 cs. Tyne S. S. Co.	
Sulphur — Pomaron, 970 t. Mason & Bury	
Ultramarine — Hamburg, 10 cks. Tyne S. S. Co.	
Waste Salt — Hamburg, 221 t.	
White Lead — Antwerp, 2 brls. Tyne S. S. Co.	
Zinc Oxide — Antwerp, 15 brls. Tyne S. S. Co.	

GOOLE.

Week ending November 15th.

Alkali — Hamburg, 4 cks.	
Alumina Sulphate — Rotterdam, 59 cks.	
Antimony Sulphide — Boulogne, 2 cks.	
Dyestuffs — Alizarine Rotterdam, 135 pkgs.	
Indigo Rotterdam, 10 cbts.	
Dyestuffs (otherwise unclassified) Boulogne, 29 cks. 34 cs. 12 pkgs.	
Farina — Hamburg, 200 bgs. Delfsryhl, 750	
Potash — Rotterdam, 34 cks. Dunkirk, 31 dms.	
Saltpetre — Hamburg, 36 cks. 10 kgs. Rotterdam, 100 bgs.	
Waste Salt — Hamburg, 1,600 bgs. 576 t. 48 dms.	
Zinc Oxide — Hamburg, 13 cks.	

GRIMSBY.

Week ending November 18th.

Albumen — Antwerp, 2 cs.	
Chemicals (otherwise unclassified) Antwerp, 35 cks.	
Dyestuffs (otherwise unclassified) Dieppe, 30 cks.	
Farina — Hamburg, 650 bgs.	
Size — Antwerp, 12 pkgs.	

EXPORTS OF CHEMICAL PRODUCTS OF THE PRINCIPAL PORTS OF THE UNITED KINGDOM.

LONDON.

Week ending November 22nd.

Acetic Acid— Brisbane, 2 t. 4 c. £56 B. Ayres, 13 25	Chloride of Lime— Cape Town, 8 c. £10	Disinfectants— B. Ayres, 350 pkgs. 5 cs. £180 Rotterdam, 25 cs. 125	Sodium Bicarbonate— Rockhampton, 1 t. £7 Brisbane, 1 7
Acids— Berbice, 6 chys. £30 Natal, 16 c. 13 Cape Town, 12 cs. 12	Citric Acid— Sydney, 6 c. £46 Bombay, 1 cs. 1 23 B. Ayres, 40 kgs. 325 Kurrachee, 1 9 Copenhagen, 1 ck. 28 Odessa, 3 18 Stettin, 5 40 Calcutta, 4 18 Hamburg, 15 120 Durban, 2 cs. 19 Yokohama, 5 41 Oporto, 2 cs. 18 Genoa, 2 t. 320 San Sebastian, 6 50	Disinfectants and Acids— B. Ayres, 5 pkgs. £11	Sodium Salicylate— Brisbane, 1 cs. £15 Adelaide, 1 c. 13
Alkali— Melbourne, 24 t. 2 c. £127	Coal Products— Allzarine Bombay, 62 kgs. £349 New York, 40 cs. 600 Aniline New York, 22 cs. 30 brls. £480 Calcutta, 2 cs. 50 Aniline Oil Genoa, 14 dms. £450 Aniline Salts Naples, 3 cs. £20 Anthracene Rotterdam, 375 cs. £1,631 Benzol Calais, 23 dms. 8 brls. 35 Rotterdam, 41 24 619 Teneuzen, 39 320 Hamburg, 9 cs. 85 Trepot, 12 114 Creosote Huelva, 4,200 cs. £1,663 Salzaete, 588 brls. 123 Dieppe, 588 123 Creosote Oil Trepot, 23 brls. £24 Pitch Rotterdam, 1,520 t. £1,798 Madras, 30 rnlts. 13 Boston, 440 bgs. 137 Danzig, 180 t. 234 Philadelphia, 1,000 cs. 2,328 pkgs. 1,117 Dunkirk, 135 t. 201 St. Nazaire, 1,030 1,450 Cete, 1,050 1,300 Dunkirk, 345 517 Pyridine Bases Hamburg, 11 dms. 242 Tar Sydney, 20 brls. £19 Zanzibar, 20 rnlts. 8 Algoa Bay, 765 drs. 10 Adelaide, 8 cs. 7 Natal, 200 dms. 8 Malta, 10 brls. 11 Lanzaroto, 2 6 Tar Oil Algoa Bay, 15 t. 7 c. £50 Paris, 20 cs. 50 Toluol Rotterdam, 18 pns. 25 rns. £280	Flowers of Sulphur— Algoa Bay, 1 t. 2 c. £7 Sydney, 1 8	Sodium Sulphide— Brisbane, 1 t. 2 c. £10
Alum— Sydney, 25 cs. £11 Gibraltar, 2 t. 14 c. 15 Mogador, 5 29 Salonica, 10 58	Coal Products— Allzarine Bombay, 62 kgs. £349 New York, 40 cs. 600 Aniline New York, 22 cs. 30 brls. £480 Calcutta, 2 cs. 50 Aniline Oil Genoa, 14 dms. £450 Aniline Salts Naples, 3 cs. £20 Anthracene Rotterdam, 375 cs. £1,631 Benzol Calais, 23 dms. 8 brls. 35 Rotterdam, 41 24 619 Teneuzen, 39 320 Hamburg, 9 cs. 85 Trepot, 12 114 Creosote Huelva, 4,200 cs. £1,663 Salzaete, 588 brls. 123 Dieppe, 588 123 Creosote Oil Trepot, 23 brls. £24 Pitch Rotterdam, 1,520 t. £1,798 Madras, 30 rnlts. 13 Boston, 440 bgs. 137 Danzig, 180 t. 234 Philadelphia, 1,000 cs. 2,328 pkgs. 1,117 Dunkirk, 135 t. 201 St. Nazaire, 1,030 1,450 Cete, 1,050 1,300 Dunkirk, 345 517 Pyridine Bases Hamburg, 11 dms. 242 Tar Sydney, 20 brls. £19 Zanzibar, 20 rnlts. 8 Algoa Bay, 765 drs. 10 Adelaide, 8 cs. 7 Natal, 200 dms. 8 Malta, 10 brls. 11 Lanzaroto, 2 6 Tar Oil Algoa Bay, 15 t. 7 c. £50 Paris, 20 cs. 50 Toluol Rotterdam, 18 pns. 25 rns. £280	Guano— Jersey, 10 t. 19 c. £88 Jamaica, 25 250 Bordeaux, 10 100	Sodium Tartrate— Boston, 3 brls. £18
Aluminous Cake— Calcutta, 37 t. 5 c. £150	Coal Products— Allzarine Bombay, 62 kgs. £349 New York, 40 cs. 600 Aniline New York, 22 cs. 30 brls. £480 Calcutta, 2 cs. 50 Aniline Oil Genoa, 14 dms. £450 Aniline Salts Naples, 3 cs. £20 Anthracene Rotterdam, 375 cs. £1,631 Benzol Calais, 23 dms. 8 brls. 35 Rotterdam, 41 24 619 Teneuzen, 39 320 Hamburg, 9 cs. 85 Trepot, 12 114 Creosote Huelva, 4,200 cs. £1,663 Salzaete, 588 brls. 123 Dieppe, 588 123 Creosote Oil Trepot, 23 brls. £24 Pitch Rotterdam, 1,520 t. £1,798 Madras, 30 rnlts. 13 Boston, 440 bgs. 137 Danzig, 180 t. 234 Philadelphia, 1,000 cs. 2,328 pkgs. 1,117 Dunkirk, 135 t. 201 St. Nazaire, 1,030 1,450 Cete, 1,050 1,300 Dunkirk, 345 517 Pyridine Bases Hamburg, 11 dms. 242 Tar Sydney, 20 brls. £19 Zanzibar, 20 rnlts. 8 Algoa Bay, 765 drs. 10 Adelaide, 8 cs. 7 Natal, 200 dms. 8 Malta, 10 brls. 11 Lanzaroto, 2 6 Tar Oil Algoa Bay, 15 t. 7 c. £50 Paris, 20 cs. 50 Toluol Rotterdam, 18 pns. 25 rns. £280	Hydrochloric Acid— Huelva, 1 t. £25	Sulphur— Bahia, 10 kgs. £5 Algoa Bay, 40 cs. 13 Brisbane, 1 t. 10 c. 9 Sydney, 3 5
Ammonia (Liquid)— B. Ayres, 9 c. £31	Coal Products— Allzarine Bombay, 62 kgs. £349 New York, 40 cs. 600 Aniline New York, 22 cs. 30 brls. £480 Calcutta, 2 cs. 50 Aniline Oil Genoa, 14 dms. £450 Aniline Salts Naples, 3 cs. £20 Anthracene Rotterdam, 375 cs. £1,631 Benzol Calais, 23 dms. 8 brls. 35 Rotterdam, 41 24 619 Teneuzen, 39 320 Hamburg, 9 cs. 85 Trepot, 12 114 Creosote Huelva, 4,200 cs. £1,663 Salzaete, 588 brls. 123 Dieppe, 588 123 Creosote Oil Trepot, 23 brls. £24 Pitch Rotterdam, 1,520 t. £1,798 Madras, 30 rnlts. 13 Boston, 440 bgs. 137 Danzig, 180 t. 234 Philadelphia, 1,000 cs. 2,328 pkgs. 1,117 Dunkirk, 135 t. 201 St. Nazaire, 1,030 1,450 Cete, 1,050 1,300 Dunkirk, 345 517 Pyridine Bases Hamburg, 11 dms. 242 Tar Sydney, 20 brls. £19 Zanzibar, 20 rnlts. 8 Algoa Bay, 765 drs. 10 Adelaide, 8 cs. 7 Natal, 200 dms. 8 Malta, 10 brls. 11 Lanzaroto, 2 6 Tar Oil Algoa Bay, 15 t. 7 c. £50 Paris, 20 cs. 50 Toluol Rotterdam, 18 pns. 25 rns. £280	Hypsulphite of Lime— Hamburg, 2 cs. £38	Sulphuric Acid— Penang, 1 t. 5 c. £13 Karachi, 6 cs. 9 E. London, 15 11 Durban, 27 22 Delagoa Bay, 1 10 15 Cape Town, 1 10 14 Huelva, 10 8
Ammonium Carbonate— Brisbane, 5 c. £9 Stettin, 1 t. 1 31 Rosario, 15 25 Sydney, 15 cs. 28 Higo, 3 96 Cape Town, 5 12	Coal Products— Allzarine Bombay, 62 kgs. £349 New York, 40 cs. 600 Aniline New York, 22 cs. 30 brls. £480 Calcutta, 2 cs. 50 Aniline Oil Genoa, 14 dms. £450 Aniline Salts Naples, 3 cs. £20 Anthracene Rotterdam, 375 cs. £1,631 Benzol Calais, 23 dms. 8 brls. 35 Rotterdam, 41 24 619 Teneuzen, 39 320 Hamburg, 9 cs. 85 Trepot, 12 114 Creosote Huelva, 4,200 cs. £1,663 Salzaete, 588 brls. 123 Dieppe, 588 123 Creosote Oil Trepot, 23 brls. £24 Pitch Rotterdam, 1,520 t. £1,798 Madras, 30 rnlts. 13 Boston, 440 bgs. 137 Danzig, 180 t. 234 Philadelphia, 1,000 cs. 2,328 pkgs. 1,117 Dunkirk, 135 t. 201 St. Nazaire, 1,030 1,450 Cete, 1,050 1,300 Dunkirk, 345 517 Pyridine Bases Hamburg, 11 dms. 242 Tar Sydney, 20 brls. £19 Zanzibar, 20 rnlts. 8 Algoa Bay, 765 drs. 10 Adelaide, 8 cs. 7 Natal, 200 dms. 8 Malta, 10 brls. 11 Lanzaroto, 2 6 Tar Oil Algoa Bay, 15 t. 7 c. £50 Paris, 20 cs. 50 Toluol Rotterdam, 18 pns. 25 rns. £280	Manure— Melbourne, 5 t. £49 Hamburg, 200 5 c. 1,443 Jersey, 70 4 274 Tarragona, 14 11 125 Demerara, 80 2 885 Orotava, 22 12 156 Barbadoes, 20 160 Guadeloupe, 21 17 578 Las Palmas, 20 85	Superphosphate— Bordeaux, 10 t. £30 Bilbao, 20 70
Ammonium Chloride— Amwerp, 10 t. £203 Shanghai, 1 1 c. 38 Christiania, 7 7 Algoa Bay, 7 10 Cologne, 10 cs. 56 Constantinople, 10 20 Trebizonde, 15 27 Adelaide, 1 t. 2 40 Constantinople, 14 25	Coal Products— Allzarine Bombay, 62 kgs. £349 New York, 40 cs. 600 Aniline New York, 22 cs. 30 brls. £480 Calcutta, 2 cs. 50 Aniline Oil Genoa, 14 dms. £450 Aniline Salts Naples, 3 cs. £20 Anthracene Rotterdam, 375 cs. £1,631 Benzol Calais, 23 dms. 8 brls. 35 Rotterdam, 41 24 619 Teneuzen, 39 320 Hamburg, 9 cs. 85 Trepot, 12 114 Creosote Huelva, 4,200 cs. £1,663 Salzaete, 588 brls. 123 Dieppe, 588 123 Creosote Oil Trepot, 23 brls. £24 Pitch Rotterdam, 1,520 t. £1,798 Madras, 30 rnlts. 13 Boston, 440 bgs. 137 Danzig, 180 t. 234 Philadelphia, 1,000 cs. 2,328 pkgs. 1,117 Dunkirk, 135 t. 201 St. Nazaire, 1,030 1,450 Cete, 1,050 1,300 Dunkirk, 345 517 Pyridine Bases Hamburg, 11 dms. 242 Tar Sydney, 20 brls. £19 Zanzibar, 20 rnlts. 8 Algoa Bay, 765 drs. 10 Adelaide, 8 cs. 7 Natal, 200 dms. 8 Malta, 10 brls. 11 Lanzaroto, 2 6 Tar Oil Algoa Bay, 15 t. 7 c. £50 Paris, 20 cs. 50 Toluol Rotterdam, 18 pns. 25 rns. £280	Muriate of Lime— B. Ayres, 1 t. 11 c. £9	Tartaric Acid— Maryborough, 1 c. £6 Melbourne, 13 62 Brisbane, 10 52 Hamburg, 10 50 Natal, 3 15 Canterbury, 1 5 Bombay, 2 2 cs. 10 Sydney, 3 t. 2 362 Wellington, 5 27 Invercargill, 2 10 Adelaide, 2 8 247
Ammonium Sulphate— Colombo, 1 t. 14 c. £24 Jersey, 3 40 Hamburg, 10 10 130 Valencia, 500 6 500 Ostend, 20 4 258 Dunkirk, 25 6 310 Demerara, 232 3,016	Coal Products— Allzarine Bombay, 62 kgs. £349 New York, 40 cs. 600 Aniline New York, 22 cs. 30 brls. £480 Calcutta, 2 cs. 50 Aniline Oil Genoa, 14 dms. £450 Aniline Salts Naples, 3 cs. £20 Anthracene Rotterdam, 375 cs. £1,631 Benzol Calais, 23 dms. 8 brls. 35 Rotterdam, 41 24 619 Teneuzen, 39 320 Hamburg, 9 cs. 85 Trepot, 12 114 Creosote Huelva, 4,200 cs. £1,663 Salzaete, 588 brls. 123 Dieppe, 588 123 Creosote Oil Trepot, 23 brls. £24 Pitch Rotterdam, 1,520 t. £1,798 Madras, 30 rnlts. 13 Boston, 440 bgs. 137 Danzig, 180 t. 234 Philadelphia, 1,000 cs. 2,328 pkgs. 1,117 Dunkirk, 135 t. 201 St. Nazaire, 1,030 1,450 Cete, 1,050 1,300 Dunkirk, 345 517 Pyridine Bases Hamburg, 11 dms. 242 Tar Sydney, 20 brls. £19 Zanzibar, 20 rnlts. 8 Algoa Bay, 765 drs. 10 Adelaide, 8 cs. 7 Natal, 200 dms. 8 Malta, 10 brls. 11 Lanzaroto, 2 6 Tar Oil Algoa Bay, 15 t. 7 c. £50 Paris, 20 cs. 50 Toluol Rotterdam, 18 pns. 25 rns. £280	Potash Salts— Natal, 29 t. 18 c. £3,708	Tartaric Acid and Citric Acid— Rangoon, 2 cs. £14
Boracic Acid— Adelaide, 6 c. £11	Coal Products— Allzarine Bombay, 62 kgs. £349 New York, 40 cs. 600 Aniline New York, 22 cs. 30 brls. £480 Calcutta, 2 cs. 50 Aniline Oil Genoa, 14 dms. £450 Aniline Salts Naples, 3 cs. £20 Anthracene Rotterdam, 375 cs. £1,631 Benzol Calais, 23 dms. 8 brls. 35 Rotterdam, 41 24 619 Teneuzen, 39 320 Hamburg, 9 cs. 85 Trepot, 12 114 Creosote Huelva, 4,200 cs. £1,663 Salzaete, 588 brls. 123 Dieppe, 588 123 Creosote Oil Trepot, 23 brls. £24 Pitch Rotterdam, 1,520 t. £1,798 Madras, 30 rnlts. 13 Boston, 440 bgs. 137 Danzig, 180 t. 234 Philadelphia, 1,000 cs. 2,328 pkgs. 1,117 Dunkirk, 135 t. 201 St. Nazaire, 1,030 1,450 Cete, 1,050 1,300 Dunkirk, 345 517 Pyridine Bases Hamburg, 11 dms. 242 Tar Sydney, 20 brls. £19 Zanzibar, 20 rnlts. 8 Algoa Bay, 765 drs. 10 Adelaide, 8 cs. 7 Natal, 200 dms. 8 Malta, 10 brls. 11 Lanzaroto, 2 6 Tar Oil Algoa Bay, 15 t. 7 c. £50 Paris, 20 cs. 50 Toluol Rotterdam, 18 pns. 25 rns. £280	Potassium Bichromate— Wellington, 20 kgs. £51 Calcutta, 1 t. 13 c. 70 Rio de Janeiro, 2 cs. 10 Smyrna, 2 35	LIVERPOOL. Week ending November 22nd.
Borax— Stamboul, 1 t. 2 c. £28 Brisbane, 1 15 51 Stettin, 8 12 Hamburg, 6 cs. 44 Mannheim, 5 t. 15 c. 160 Rotterdam, 2 cs. 26 Flushing, 5 16 Algoa Bay, 11 16 Salonica, 8 brls. 30 Townsville, 5 8	Coal Products— Allzarine Bombay, 62 kgs. £349 New York, 40 cs. 600 Aniline New York, 22 cs. 30 brls. £480 Calcutta, 2 cs. 50 Aniline Oil Genoa, 14 dms. £450 Aniline Salts Naples, 3 cs. £20 Anthracene Rotterdam, 375 cs. £1,631 Benzol Calais, 23 dms. 8 brls. 35 Rotterdam, 41 24 619 Teneuzen, 39 320 Hamburg, 9 cs. 85 Trepot, 12 114 Creosote Huelva, 4,200 cs. £1,663 Salzaete, 588 brls. 123 Dieppe, 588 123 Creosote Oil Trepot, 23 brls. £24 Pitch Rotterdam, 1,520 t. £1,798 Madras, 30 rnlts. 13 Boston, 440 bgs. 137 Danzig, 180 t. 234 Philadelphia, 1,000 cs. 2,328 pkgs. 1,117 Dunkirk, 135 t. 201 St. Nazaire, 1,030 1,450 Cete, 1,050 1,300 Dunkirk, 345 517 Pyridine Bases Hamburg, 11 dms. 242 Tar Sydney, 20 brls. £19 Zanzibar, 20 rnlts. 8 Algoa Bay, 765 drs. 10 Adelaide, 8 cs. 7 Natal, 200 dms. 8 Malta, 10 brls. 11 Lanzaroto, 2 6 Tar Oil Algoa Bay, 15 t. 7 c. £50 Paris, 20 cs. 50 Toluol Rotterdam, 18 pns. 25 rns. £280	Potassium Chlorate— Odessa, 1 t. 15 c. £110 Libau, 10 36 New York, 10 16 550 Bombay, 4 21	Acetic Acid— Lisbon 13 c. £9
Boric Acid— Brisbane, 6 c. £12	Coal Products— Allzarine Bombay, 62 kgs. £349 New York, 40 cs. 600 Aniline New York, 22 cs. 30 brls. £480 Calcutta, 2 cs. 50 Aniline Oil Genoa, 14 dms. £450 Aniline Salts Naples, 3 cs. £20 Anthracene Rotterdam, 375 cs. £1,631 Benzol Calais, 23 dms. 8 brls. 35 Rotterdam, 41 24 619 Teneuzen, 39 320 Hamburg, 9 cs. 85 Trepot, 12 114 Creosote Huelva, 4,200 cs. £1,663 Salzaete, 588 brls. 123 Dieppe, 588 123 Creosote Oil Trepot, 23 brls. £24 Pitch Rotterdam, 1,520 t. £1,798 Madras, 30 rnlts. 13 Boston, 440 bgs. 137 Danzig, 180 t. 234 Philadelphia, 1,000 cs. 2,328 pkgs. 1,117 Dunkirk, 135 t. 201 St. Nazaire, 1,030 1,450 Cete, 1,050 1,300 Dunkirk, 345 517 Pyridine Bases Hamburg, 11 dms. 242 Tar Sydney, 20 brls. £19 Zanzibar, 20 rnlts. 8 Algoa Bay, 765 drs. 10 Adelaide, 8 cs. 7 Natal, 200 dms. 8 Malta, 10 brls. 11 Lanzaroto, 2 6 Tar Oil Algoa Bay, 15 t. 7 c. £50 Paris, 20 cs. 50 Toluol Rotterdam, 18 pns. 25 rns. £280	Potassium Prussiate— New York, 33 cs. £365	Alum— Bombay, 12 t. 17 c. £69 B. Ayres, 1 8 7 Seville, 2 2 11
Carbolic Acid— Rotterdam, 25 brls. £73	Coal Products— Allzarine Bombay, 62 kgs. £349 New York, 40 cs. 600 Aniline New York, 22 cs. 30 brls. £480 Calcutta, 2 cs. 50 Aniline Oil Genoa, 14 dms. £450 Aniline Salts Naples, 3 cs. £20 Anthracene Rotterdam, 375 cs. £1,631 Benzol Calais, 23 dms. 8 brls. 35 Rotterdam, 41 24 619 Teneuzen, 39 320 Hamburg, 9 cs. 85 Trepot, 12 114 Creosote Huelva, 4,200 cs. £1,663 Salzaete, 588 brls. 123 Dieppe, 588 123 Creosote Oil Trepot, 23 brls. £24 Pitch Rotterdam, 1,520 t. £1,798 Madras, 30 rnlts. 13 Boston, 440 bgs. 137 Danzig, 180 t. 234 Philadelphia, 1,000 cs. 2,328 pkgs. 1,117 Dunkirk, 135 t. 201 St. Nazaire, 1,030 1,450 Cete, 1,050 1,300 Dunkirk, 345 517 Pyridine Bases Hamburg, 11 dms. 242 Tar Sydney, 20 brls. £19 Zanzibar, 20 rnlts. 8 Algoa Bay, 765 drs. 10 Adelaide, 8 cs. 7 Natal, 200 dms. 8 Malta, 10 brls. 11 Lanzaroto, 2 6 Tar Oil Algoa Bay, 15 t. 7 c. £50 Paris, 20 cs. 50 Toluol Rotterdam, 18 pns. 25 rns. £280	Potassium Sulphate— Bilbao, 7 t. £80	Alumina Sulphate— Boston, 1 t. 3 q. £30
Carbon Bisulphide— B. Ayres, 2 t. 9 c. 101 pkgs. £90 Rosario, 100 drs. 50 M. Video, 5 t. 80	Coal Products— Allzarine Bombay, 62 kgs. £349 New York, 40 cs. 600 Aniline New York, 22 cs. 30 brls. £480 Calcutta, 2 cs. 50 Aniline Oil Genoa, 14 dms. £450 Aniline Salts Naples, 3 cs. £20 Anthracene Rotterdam, 375 cs. £1,631 Benzol Calais, 23 dms. 8 brls. 35 Rotterdam, 41 24 619 Teneuzen, 39 320 Hamburg, 9 cs. 85 Trepot, 12 114 Creosote Huelva, 4,200 cs. £1,663 Salzaete, 588 brls. 123 Dieppe, 588 123 Creosote Oil Trepot, 23 brls. £24 Pitch Rotterdam, 1,520 t. £1,798 Madras, 30 rnlts. 13 Boston, 440 bgs. 137 Danzig, 180 t. 234 Philadelphia, 1,000 cs. 2,328 pkgs. 1,117 Dunkirk, 135 t. 201 St. Nazaire, 1,030 1,450 Cete, 1,050 1,300 Dunkirk, 345 517 Pyridine Bases Hamburg, 11 dms. 242 Tar Sydney, 20 brls. £19 Zanzibar, 20 rnlts. 8 Algoa Bay, 765 drs. 10 Adelaide, 8 cs. 7 Natal, 200 dms. 8 Malta, 10 brls. 11 Lanzaroto, 2 6 Tar Oil Algoa Bay, 15 t. 7 c. £50 Paris, 20 cs. 50 Toluol Rotterdam, 18 pns. 25 rns. £280	Saltpetre— Sydney, 7 t. £156 Bahia, 9 11 c. 216 Bombay, 10 11 Keppel Bay, 1 10 22 Brisbane, 2 10 11 Rio de Janeiro, 2 9 55 Hamburg, 1 22 Boston, 2 1 44 E. London, 17 20 Madeira, 5 7 Oporto, 3 14 75 Adelaide, 2 15 60 Lisbon, 14 13 305 Piræus, 1 5 25	Alumina Sulphate— Hamburg, 5 t. 1 c. 2 q. £66 Marseilles, 76 1 2 999 Valencia, 104 11 1,339 Rotterdam, 9 18 3 150 Gr. Canary, 4 1 3 59 Barcelona, 50 12 658 Malaga, 25 9 2 350 Demerara, 7 14 1 108
Caustic Soda— Algoa Bay, 1 t. 3 c. £42 Wellington, 10 115 Sulina, 3 13 Canterbury, 1 6 18 E. London, 9 16 E. London, 10 16 Fremantle, 1 12 16 Lytleton, 3 11 39 Adelaide, 5 6	Coal Products— Allzarine Bombay, 62 kgs. £349 New York, 40 cs. 600 Aniline New York, 22 cs. 30 brls. £480 Calcutta, 2 cs. 50 Aniline Oil Genoa, 14 dms. £450 Aniline Salts Naples, 3 cs. £20 Anthracene Rotterdam, 375 cs. £1,631 Benzol Calais, 23 dms. 8 brls. 35 Rotterdam, 41 24 619 Teneuzen, 39 320 Hamburg, 9 cs. 85 Trepot, 12 114 Creosote Huelva, 4,200 cs. £1,663 Salzaete, 588 brls. 123 Dieppe, 588 123 Creosote Oil Trepot, 23 brls. £24 Pitch Rotterdam, 1,520 t. £1,798 Madras, 30 rnlts. 13 Boston, 440 bgs. 137 Danzig, 180 t. 234 Philadelphia, 1,000 cs. 2,328 pkgs. 1,117 Dunkirk, 135 t. 201 St. Nazaire, 1,030 1,450 Cete, 1,050 1,300 Dunkirk, 345 517 Pyridine Bases Hamburg, 11 dms. 242 Tar Sydney, 20 brls. £19 Zanzibar, 20 rnlts. 8 Algoa Bay, 765 drs. 10 Adelaide, 8 cs. 7 Natal, 200 dms. 8 Malta, 10 brls. 11 Lanzaroto, 2 6 Tar Oil Algoa Bay, 15 t. 7 c. £50 Paris, 20 cs. 50 Toluol Rotterdam, 18 pns. 25 rns. £280	Salts of Soda & Salts of Lime— Toronto, 5 cs. 20 kgs. £267	Antimony— Oporto, 1 ck. £9 St. Louis, 1 1
Chemicals (otherwise undescribed) Fremantle, 8 c. £20 Melbourne, 10 cs. 106 Wellington, 2 kgs. 19 pkgs. 43 Bombay, 3 cs. 13 E. London, 1 t. 8 c. 63 Adelaide, 8 12 Spain, 10 cs. 49 Huelva, 7 c. 24	Coal Products— Allzarine Bombay, 62 kgs. £349 New York, 40 cs. 600 Aniline New York, 22 cs. 30 brls. £480 Calcutta, 2 cs. 50 Aniline Oil Genoa, 14 dms. £450 Aniline Salts Naples, 3 cs. £20 Anthracene Rotterdam, 375 cs. £1,631 Benzol Calais, 23 dms. 8 brls. 35 Rotterdam, 41 24 619 Teneuzen, 39 320 Hamburg, 9 cs. 85 Trepot, 12 114 Creosote Huelva, 4,200 cs. £1,663 Salzaete, 588 brls. 123 Dieppe, 588 123 Creosote Oil Trepot, 23 brls. £24 Pitch Rotterdam, 1,520 t. £1,798 Madras, 30 rnlts. 13 Boston, 440 bgs. 137 Danzig, 180 t. 234 Philadelphia, 1,000 cs. 2,328 pkgs. 1,117 Dunkirk, 135 t. 201 St. Nazaire, 1,030 1,450 Cete, 1,050 1,300 Dunkirk, 345 517 Pyridine Bases Hamburg, 11 dms. 242 Tar Sydney, 20 brls. £19 Zanzibar, 20 rnlts. 8 Algoa Bay, 765 drs. 10 Adelaide, 8 cs. 7 Natal, 200 dms. 8 Malta, 10 brls. 11 Lanzaroto, 2 6 Tar Oil Algoa Bay, 15 t. 7 c. £50 Paris, 20 cs. 50 T		

Barium Chlorate—

Genoa, 14 c. £60

Bleaching Powder—

Boston, 307 cks.
 Genoa, 45
 Messina, 103 10 brls.
 New York, 103 28 pkgs.
 Piraeus, 4
 Vera Cruz, 10
 Baltimore, 88
 Bilbao, 28
 Oporto, 8

Bone Ash—

Algoa Bay, 11 c. £8

Boracic Acid—Havre, 1 t. 1 c. £42
Vera Cruz, 3 6**Borax—**

Sydney, 10 c. £14
 Piraeus, 3 2 q. 5
 Santander, 1 t. 10 45
 Hamburg, 4 18 135
 Amsterdam, 3 6 2 97
 Rotterdam, 5 9 149

Calcined Magnesia—

Mexico, 3 cks.

Calcium Chloride—

B. Ayres, 5 t. 2 c. £12
 M. Video, 4 8 10
 Rosario, 4 1 9
 Teneriffe, 10 3 24
 Mexico City, 2 3 q. 17

Carbolic Acid—

Bilbao, 19 c. 3 q. £42
 Hong Kong, 11 2 8
 Rotterdam, 10 t. 561
 Rosario, 5 10
 Montreal, 2 11

Castor Oil—

Marseilles, 2 brls.

Caustic Soda—

Bahia, 60 dms.
 Baltimore, 150
 Barcelona, 72
 Bombay, 18
 Boston, 175
 B. Ayres, 12
 Calcutta, 125
 Corunna, 20 brls.
 Jaffa, 35
 La Guayra, 10
 Manila, 50
 Melbourne, 18
 N. Orleans, 33
 New York, 854 20 pkgs.
 Oporto, 30
 Philadelphia, 50
 Piraeus, 4
 Rouen, 30
 Salonic, 10
 Valencia, 96
 Victoria, B.C., 25
 Vigo, 10 brls. 8
 Algiers, 50
 Brisbane, 25
 Melbourne, 19
 M. Video, 50
 Pernambuco, 80
 Shanghai, 4
 Smyrna, 2
 Vera Cruz, 50
 Yokohama, 100

Chemicals (otherwise undescribed)

Alexandria, 2 t. 5 c. £78
 New York, 19 9 535
 Tripoli, 15 25
 Beyrout, 1 35
 Rangoon, 5 cs. 27
 Smyrna, 16 2 q. 28
 Sourabaya, 2 3 5
 Genoa, 1 34
 Philadelphia, 12 19 324
 Odessa, 2 70

China Clay—

Boston, 180 t.
 Barcelona, 20
 Bombay, 10
 Calcutta, 27
 N. Orleans, 15
 Rio de Janeiro, 6
 St. John's, N.F., 7 11 c.

Coal Products—

Aniline Colours
 New York, 5 kgs.
Aniline Oil
 Barcelona, 11 cks.
Aniline Salts
 Piraeus, 5 cks.
Anthracene
 Rotterdam, 27 cks.

Pitch

B. Ayres, 7 cks.
 Marseilles, 78 t. 10 c.
Tar
 Pt. Natal, 500 dms.
 Sherbro, 11 brls.
 Sierra Leone, 20

Copperas—

Alexandria, 8 t. 8 c. £16

Copper Sulphate—

Corunna, 14 c. 1 q. £11
 Genoa, 10 t. 12 1 163
 Venice, 15 1 2 224
 Marseilles, 558 10 5,936
 Penang, 6 1 5
 Ibrail, 1 16
 Dinkirk, 5 1 80
 Lisbon, 5 3 1 80
 Rouen, 95 4 1,524
 Oporto, 5 1 75
 Vera Cruz, 10 7
 Naples, 2 19 3 42

Disinfectants—

Bombay, 2 t. 10 c. £14

Dried Blood—

Gr. Canary, 1 t. 16 c. 2 q. £14

Iron Oxide—

Rosario, 19 t. 6 c. 1 q. £26

Lime—

Old Calabar, 10 t. 8 c. £10

Magnesia—Havana, 5 cs.
M. Video, 6 6 cks. 6 dms.**Magnesium Carbonate—**

Mexico City, 8 c. 2 q. £16

Magnesium Chlorate—

Bahia, 10 dms.

Magnesium Chloride—

Bahia, 2 t. 11 c. £6
 Rouen, 10 1 1 q. 25

Manure—

Gr. Canary, 1 t. £5
 Teneriffe, 5 40
 Genoa, 197 1 c. 610
 Landerneau, 155 8 2 q. 626

Muriatic Acid—

Maceio, 1 t. £11

Paint—

Cienfuegos, 2 cks.
 Colombo, 10 2 kgs.
 Coquimbo, 7
 Loanda, 30
 Mossamedes, 100
 Calcutta, 280
 Christiansted, 2
 Fredericksted, 12
 Gr. Canary, 30
 Kingston, Jam., 2 100
 Maranham, 2
 Mayaquez, 8
 Sagua la Grande, 1
 St. Croix, 1
 Trinidad, 1

Painters' Colours—

Bathurst, 85 kgs.
 Bombay, 110 46 cs.
 B. Ayres, 6 cks. 16 72 37 brls.
 Halifax, 38 6 tcs. 20
 Hamburg, 1 8 14 dms. 20 pkgs.
 Havana, 9 brls.
 Jacmel, 25 1
 Larnaca, 2 2 2 dms.
 Lisbon, 6 cks.
 Marseilles, 25 tins
 Mauritius, 6 408 kgs.
 Mayaquez, 30
 Pernambuco, 6 27
 Rotterdam, 4
 St. Louis, 100
 San Juan, 295
 Syra, 4
 Alexandria, 10 6 dms. 6 kgs.
 Amsterdam, 10 96
 Arroyo, 5 brls. 21
 Benguella, 20
 Beyrout, 15
 Calcutta, 2 cks.
 Kurrachee, 5 pkgs. 1
 Lisbon, 45 brls. 4 cs.
 M. Video, 234 cks.
 Philadelphia, 2
 Ponce, 2
 Rosario, 7 2 brls. 456
 St. Thomas, 4
 Sherbro, 3
 Sierra Leone, 210
 Vera Cruz, 80 dms.

Paraffin Wax—

Patras, 20 bgs.
 Rio de Janeiro, 4 cs.
 San Sebastian, 30

Phosphate of Lime—

New York, 19 c. £17

Phosphorus—

Hio, 2 t. 13 c. £52
 Yokohama, 10 cs. 129
 Hong Kong, 4 52
 Shanghai, 10 100

Potassium Bichromate—

Aleppo, 12 c. 2 q. £28
 Salonic, 14 35
 Rotterdam, 8 1 19

Potassium Chlorate—

Hamburg, 2 t. £134
 Vera Cruz, 1 13 c. 117
 San Juan, 1 56
 Stockholm, 15 44
 Rotterdam, 1 12 105
 Boston, 7 10 310
 Hio, 80 4,870
 New York, 53 6 3,169
 Yokohama, 13 10 802
 Copenhagen, 5 10 306
 Odessa, 12 40
 Genoa, 3 10 214
 Ghent, 6 22
 Trieste, 2 7

Potassium Prussiate—

Naples, 1 t. £100

Potassium Stannate—

Bombay, 1 t. 2 c. 2 q. £36

Quicksilver—

Havana, 3 brls.

Rosalic Acid—

New York, 2 kgs. £19

Rosin—

Piraeus, 3 cks.

Salt—

Calcutta, 5,007 t.
 Ghent, 100
 Manoh, 20
 Melbourne, 50
 N. Orleans, 200
 Rangoon, 4,027
 Rotterdam, 341
 St. John's, Nfld., 120
 Victoria, B.C., 100 3 c
 Accra, 5
 Baltimore, 100
 Boston, 200
 Cameroons, 30
 Coquimbo, 100
 Demerara, 17 17
 Gr. Bassa, 15
 Montego Bay, 49 8
 N. Orleans, 130
 Newport News, 100
 New York, 1 1
 Portland, M., 45 5
 Pt. Natal, 378
 Quillo, 150
 Rio Nunez, 250
 Sierra Leone, 155
 Trinidad, 28 3
 Vancouver, 260

Salt Cake—

Baltimore, 100 t. 13 c. £141

Saltpetre—

Callo, 2 t. 1 q. £47
 Tampico, 1 13 c. 60
 Halifax, 10 11

Sheep Dip—

B. Ayres, 1 t. 9 c. £20

Size—

Rouen, 10 cks.

Soap—

Accra, 10 bxs.
 Alexandria, 20
 Algoa Bay, 1,200 210 cs.
 Amsterdam, 175
 Annatto Bay, 40
 Axim, 100
 Barbadoes, 450
 Berbice, 100
 Bombay, 73 8 cks.
 Boston, 2
 Calcutta, 67 500 bds.
 C. C. Castle, 120 16
 Cape Town, 1,475
 Chama, 140
 Christiansted, 300
 Colon, 500
 Constantinople, 300 1
 Delagoa Bay, 75
 E. London, 66 50
 Falmouth, 56
 Fredericksted, 1,000
 Hong Kong, 300
 Kingston, Jam., 2,905 4

Lagos, 50 bxs.

Las Palmas, 207
 Mauritius, 2,000
 New York, 1,172 2 cs. 135 pkgs.
 Patras, 500
 Pt. Elizabeth, 1,700 53
 Punta Arenas, 30
 St. Lucia, 100
 St. Thomas, W.I., 1,650
 Salt Pond, 260
 San Jose, 1
 Sierra Leone, 300 6
 Singapore, 1,564 10
 Shanghai, 4,750
 Smyrna, 632 1
 Teneriffe, 632 1
 Valparaiso, 1
 Brussels, 400
 Genoa, 6
 Madras, 5
 Montreal, 200
 St. John's, N.B., 200
 Savannah-la-Mar, 300
 Toronto, 750 300 bxs.
 Trinidad, 910
 Vera Cruz, 30

Soda Alkali—

Adelaide, 50 brls.
 Galatz, 15
 Piraeus, 17
 Smyrna, 85

Soda Ash—

Antwerp, 440 bgs.
 Baltimore, 2,174 271 cks. 245 t.
 Boston, 576 142 65
 B. Ayres, 400 brls. 220 50 t.
 Hamburg, 254
 Lisbon, 40 brls.
 M. Video, 50
 New York, 131 tcs. 396 9,060 t.
 Oporto, 36
 Piraeus, 60
 Smyrna, 165
 Syra, 130
 Valencia, 4 1
 Yokohama, 100 160
 Catania, 50
 Coquimbo, 20
 Genoa, 30
 Ghent, 50
 Gothenburg, 50 21 100
 Konigsberg, 5
 Maranham, 60 35
 Melbourne, 195
 Newport News, 2,400
 Philadelphia, 378 tcs. 1,534
 Rio Grande, 30
 Rio de Janeiro, 2 t.
 Rotterdam, 50
 Seville, 3
 Talcabano, 50
 Trieste, 18
 Venice, 396 t.

Soda Crystals—

Bilbao, 4 cks.
 Cape Town, 25 brls.
 Gibraltar, 34
 Malta, 100 50
 New York, 747 kgs.
 Pt. Natal, 25
 St. John's, N.F., 70 2 cs.
 Smyrna, 50
 Algoa Bay, 10 25
 Boston, 70
 Calcutta, 20 35
 Hio, 7

Soda Salt—

Rouen, 150 bgs.

Sodium Biorate—

Portland M., 23 brls.

Sodium Bicarbonate—

Halifax, 50 kgs.
 Ibrail, 10 brls.
 Malta, 10
 Nantes, 10
 Odessa, 300
 Rosario, 10 cks.
 Stettin, 2 20
 Vera Cruz, 109
 Yokohama, 1,000
 Adelaide, 25
 Algoa Bay, 100
 Ancona, 50
 B. Ayres, 405
 Calcutta, 1,600
 Hio, 100
 Dunkirk, 20
 Johannesburg, 30
 Melbourne, 240 8 cks.
 M. Video, 170
 Rotterdam, 1
 St. John's, N.F., 120
 Tampico, 20 100

Sodium Carbonate—

New York, 56 brls.

Sodium Chlorate—

Antwerp, 6 kgs.

Hamburg, 60

Rotterdam, 72 4 brls.

Sodium Silicate—

Barcelona, 49 cks.

Bilbao, 35 btl.

B. Ayres, 109

Corunna, 6 brls.

Fremantle, 3

Ibrail, 10

Lisbon, 8

Madeira, 5

N. Orleans, 47

Seville, 17

Sulphur—

Antwerp, 10 t. £39

Boston, 200 2 c. 772

Philadelphia, 50 2 193

Bahia, 19 2 q. 7

Callao, 6 4 1 37

Demerara, 7 10 53

Sulphuric Acid—

Rangoon, 4 t. 7 c. 1 q. £50

Superphosphate—

Valencia, 100 t. 2 c. £240

Gr. Canary, 3 11

Tartaric Acid—

Vera Cruz, 3 c. £19

Tin Oxide—

Genoa, 1 c. £8

Turpentine—

Bombay, 50 dms.

Calcutta, 100

Varnish—

Corfu, 1 cs.

Monrovia, 4 dms.

Havana, 1

Macao, 1

Zinc Chloride—

Bombay, 2 t. 7 c. 2 q. £20

HULL.

Week ending November 18th.

Alum—

San Francisco, 104 cks.

Ammonium Sulphate—

Antwerp, 1,015 bgs.

Dunkirk, 576

Hamburg, 273

Rouen, 92

St. Petersburg, 92

Aniline Salts—

St. Petersburg, 9 cks.

Anthracene—

Rotterdam, 63 cks.

Benzol—

Rotterdam, 25 cks.

Bleaching Powder—

Stettin, 118 cks.

Wasa, 5

Borax—

Christiania, 1 ck.

Stettin, 10

Caustic Soda—

Abo, 7 dms.

Riga, 240

Wasa, 8

Chemicals (otherwise undescribed)

Antwerp, 10 cs. 1 ck.

Amsterdam, 1

Abo, 1 14 pkgs.

Alexandria, 12 40 pkgs.

Bergen, 2

Christiania, 7 52

Dunkirk, 1

Gothenburg, 5 15

Hamburg, 161 23 11

Harlingen, 32 109

Lihau, 15

New York, 87 52 19

Rotterdam, 87 52 108

Riga, 5 3

Stettin, 15 95 422

St. Petersburg, 15 95 422

Wasa, 28 1

Cottonseed Oil—

Antwerp, 150 c.

Bremen, 204

Flushing, 162

Gothenburg, 10

Hamburg, 789

Rotterdam, 1,077

Stettin, 111

Cresote—

Dunkirk, 25 cks.

Dyestuffs (otherwise undescribed)

Christiania, 100 bls.

Flushing, 3 cks.

Libau, 1 cs.

Rotterdam, 4

Rouen, 10

Riga, 2 21 1

Stettin, 21 1

Iron Oxide—

St. Petersburg, 90 brls.

Linseed Oil—

Bergen, 133 c.

Christiania, 162

Christiansand, 35

Drontheim, 140

Hamburg, 56

Rotterdam, 34

Stavanger, 184

Paint—

Alexandria, 40 cks.

Painters' Colours—

Antwerp, 20 cks.

Bergen, 4 100 pks.

Bordeaux, 4

Drontheim, 3 cs.

Gothenburg, 1 32 pkgs.

Hamburg, 1 4 dms.

New York, 164

Rotterdam, 11 6

San Francisco, 108

Rouen, 4 4

Riga, 6 1

Stettin, 76 1

St. Petersburg, 5

Wasa, 5

Paris White—

San Francisco, 112 cks.

Pitch—

Antwerp, 402 t.

Plumbago—

Riga, 1 ck.

Salt—

Calcutta, 600

Size—

Bergen, 4 cks.

Soap—

Bremen, 1 cs.

Sodium Hyposulphite—

San Francisco, 200 kgs.

Tallow—

Abo, 42 cks.

Gothenburg, 101

Wasa, 101

Tar—

Antwerp, 1 ck.

Bremen, 1

Flushing, 6

Gothenburg, 150

Rotterdam, 3

Stettin, 1 cs.

Turpentine—

Alexandria, 10 cks.

Valonia—

Hamburg, 22 bls.

Varnish—

Antwerp, 12 cks.

Gothenburg, 1 9 cs. 2 bls.

Hamburg, 22

St. Petersburg, 3 3

GLASGOW.

Week ending November 23rd.

Ammonium Sulphate—

Nantes, 44 t. 1 c. £550

Demerara, 330 4 4,091

Hamburg, 90 10 1,251

Melbourne, 7 18½

Arsenic—

Calcutta, £54

Bleaching Powder—

New York, 10 t. ¾ c. £85

B. Ayres, 9 12½ 80

Melbourne, 10 1¾ 118

Boracic Acid—

Japan, 2 t. 5½ c. £87

Christiania, 6 cks. 23

Borax—

Japan, 1 t. 7¼ c. £13

Christiania, 9

Castor Oil—

Malta, 19 c. £24

Adelaide, 112½ gals. 33

Caustic Soda—

Demerara, 3 t. 11¾ c. £37

Chemicals (otherwise undescribed)

Straits, 2 t. £75

Coal Products—

Aniline

Calcutta, 11½ c. £68

Benzol

Rotterdam, 6 dms. £55

Cresote Oil

Danzig, 55 brls. £100

Pitch

Amsterdam, 200 t. £270

New York, 79 3¼ c. 120

Tar

Bombay, £60

Colombo, 47

Calcutta, 20

Danzig, 774 brls. 295

Stettin, 111 37

Tar Oil

Hamburg, 5 cks. £1. 14s.

Colours—

Melbourne, 4 t. 15¾ c. £60

Copperas—

Bombay, 17 t. 14½ c. £41

Cottonseed Oil—

Fiume, 14 t. 3½ c. £319

Hamburg, 30 brls. 127

Lead Acetate—

Bombay, 2 8¾ c. £56

Linseed Oil—

Singapore, 1 t. 1¾ c. £26

Straits, 2 2½ 58

Malta, 1 12½ 36

Melbourne, 3 ¾ 95

Litharge—

Calcutta, 1 t. 9¾ c. £21

Magnesium Sulphate—

Christiania, 10 t. £25

Bombay, 15 14 c. 68

Manganese—

Fiume, 9 t. 12 c. £90

Manganese Oxide—

New York, 9 t. 16 c. £98

Manure—

Barbadoes, 40 t. £409

Demerara, 10 950

Ochre—

New York, 5 t. 6¾ c. £86

Paint—

Singapore, 8 t. 5 c. £93

Shanghai, 3 4¼ 192

Straits, 151

Philippines, 61

Malta, 1 16½ 48

Bombay, 8 13½ 81

New York, 1 16½ £38. 15s.

Adelaide, 1 16½ £25

Melbourne, 2 11 50

Painters' Colours—

Calcutta, £165

Colombo, £35. 10s.

Paraffin Wax—

Nantes, 13 t. 8½ c. £310

Fiume, 9 18½ 240

Italy, 20 9 785

Stockholm, 100 bgs. 325

Potassium Bichromate—

Japan, 8 t. 4½ c. £310

Italy, 4 19 198

Gothenburg, 5 10½ 208

Amsterdam, 12 cks. 197

Bergen, 1 20

Potassium Prussiate—

Japan, 1 t. 2 c. £79

New York, 9 ¼ 820

Sheep Dip—

B. Ayres, 1 t. 8½ c. £60

Soap—

Philippines, 1 t. 10 c. £24

Soda Ash—

Philadelphia, 30 t. 10 c. £107

B. Ayres, 26 13½ 134

Sodium Bichromate—

Italy, 10 t. 5 c. £328

Sulphuric Acid—

Philippines, £26

Colombo, 7 t. 2 c. 40

Madras, 9 13½ 220

Tallow—

Christiania, 8 c. £3

Rotterdam, 5 t. 5 150

White Lead—

Calcutta, 2 t. 15 c. £35

Adelaide, 2 13½ 55

Melbourne, 3 £64. 10s.

TYNE.

Week ending November 18th.

Alkali—

Palermo, 2 t. 8 c.

Rotterdam, 6 6

Copenhagen, 1 3

Antimony—

Rotterdam, 10 c.

Barium Carbonate—

Hamburg, 85 t.

Copenhagen, 2

Bleaching Powder—

Hamburg, 51 t. 5 c.

Antwerp, 97 16

Christiania, 14 19

Odense, 11 15

Gothenburg, 35 4

Rotterdam, 7

Copenhagen, 17 3

Newfairwater, 60 3

Constantinople, 11 12

Caustic Soda—

Hamburg, 2 t. 18 c.

Antwerp, 4 18

Rotterdam, 2 6

Copenhagen, 3 9

PRICES CURRENT.

WEDNESDAY, NOVEMBER 29th, 1893.

PREPARED BY MESSRS. HIGGINBOTTOM AND CO., 116, PORTLAND STREET, MANCHESTER.

The values stated are F.O.R. at maker's works, or at usual ports of shipment in U.K. The price in different localities may vary.

Acids:—

Acetic, 25 %, and 40 %	per cwt.	7/6 & 11/3
" Glacial	"	50/-
Arsenic S.G., 2000°	"	0 14 6
Fluoric	per lb.	0 0 3 3/4
Muriatic (Tower Salts), 30° Tw.	per bottle	0 0 10
" (Cylinder), 30° Tw.	"	0 3 0
Nitric 80° Tw.	per lb.	0 0 1 3/4
Nitrous	"	0 0 1 3/4
Oxalic	nett	0 0 3 3/4
Phosphoric, 1750°	"	0 1 2 1/2
Picric	"	0 1 0
Sulphuric (fuming 50 %)	per ton	15 10 0
" (monohydrate)	"	5 10 0
" (Pyrites, 168°)	"	3 0 0
" " 150°	"	1 5 0
" " (free from arsenic, 145°)	"	1 6 0
Sulphurous (solution) S.G. 1025	"	3 0 0
Tannic (pure)	per lb.	0 1 2
Tartaric	"	0 0 11 1/2
Arsenic, white powdered	nett per ton	13 5 0
Alum (loose lump)	"	5 2 6
Alumina Sulphate (pure)	"	5 0 0
Aluminoferri	"	2 10 0
Aluminium	per lb.	0 3 0
Ammonia, Anhydrous	"	0 1 1
" 880=28°	per lb.	0 0 3
" =24°	"	0 0 2 3/4
" Carbonate	nett	0 0 3 1/2
" Muriate	per ton	23 0 0
" " (sal-ammoniac) 1st & 2nd	per cwt.	37/- & 35/-
" Nitrate	per ton	42 0 0
" Phosphate	per lb.	0 0 10 1/2
" Sulphate (grey) London	per ton	13 12 6
" " (grey) Hull	"	13 12 6
Aniline Oil (pure)	per lb.	0 0 6 1/4
Aniline Salt	"	0 0 5 3/4
Antimony	per ton	45 10 0
" (tartar emetic)	per lb.	0 1 0
" (golden sulphide)	"	0 0 10
Barium Chloride	per ton	7 10 0
" Carbonate (native)	"	3 10 0
" Sulphate (native levigated)	"	45/- to 75/-
Bleaching Powder, 35 %	nett	8 5 0
" Liquor, 7 %	"	3 10 0
Bisulphide of Carbon	"	11 15 0
Chromium Acetate (crystal)	per lb.	0 0 6
Calcium Chloride	per ton	2 5 0
China Clay (at Runcorn) in bulk	"	17/6 to 35/-

Coal Tar Products and Dyes:—

Alizarine (artificial) 20 %	net per lb.	0 0 8
Magenta	"	0 3 9
Anthracene, 30 % A, f.o.b. London	per unit per cwt.	0 1 2
Benzol, 90 % nominal	per gallon	0 1 6
" 50/90	"	0 1 7 1/2
Carbolic Acid (crystallised 40°)	per lb.	0 0 6 1/2
" (crude 60°)	per gallon	0 1 7
Creosote (ordinary)	"	0 0 2 1/2
" (filtered for Lucigen light)	"	0 0 3
Crude Naphtha 30 % @ 120° C.	"	0 0 9
Grease Oils, 22° Tw.	per ton	2 5 0
Pitch, f.o.b. Liverpool or Garston	"	1 8 6
Solvent Naphtha, 90 % at 160°	per gallon	0 1 5
"Lucigen" and "Wells" Oils	"	0 0 2 1/2
Copper	per ton	42 16 3
" Sulphate	"	16 0 0
" Oxide (copper scales)	"	40 0 0
Glycerine (crude)	"	13 0 0
" (distilled S.G. 1250°)	"	43 0 0
Iodine	nett, per oz.	0 0 9
Iron Sulphate (copperas)	per ton	1 12 6
" Sulphide (antimony slag)	"	2 0 0
Lead (sheet) for cash	"	10 12 6
" Litharge Flake (ex ship)	"	13 0 0
" Acetate (white ")	"	26 0 0
" " brown ")	"	17 10 0
" Carbonate (white lead) pure	"	20 0 0
" Nitrate	"	20 0 0

Lime, Acetate (brown)	per ton	7 0 0
" (grey)	"	11 5 0
Magnesium (ribbon and wire)	per oz.	0 2 3
" Chloride (ex ship)	per ton	2 10 0
" Carbonate	per cwt.	1 17 6
" Hydrate	per ton	17 0 0
" Sulphate (Epsom Salts)	per ton	2 19 0
Manganese, Sulphate	"	17 15 0
" Borate	per cwt.	2 12 6
" Ore, 70 %	per ton	4 5 0
Methylated Spirit, 61° O.P.	per gallon	0 2 0
Naphtha (Wood), Solvent	"	0 3 9
" Miscible, 60° O.P.	"	0 5 0

Oils:—

Cotton-seed	per ton	23 0 0
Linseed	"	22 0 0
Petroleum, Russian	per gallon	0 0 1 3/4
" American	"	0 0 5 3/4
Phosphorus (yellow)	per lb.	0 2 2
" (red)	"	0 2 9
Potassium (metal)	per oz.	0 3 7
" Bichromate	nett per lb.	0 0 4 1/2
" Carbonate, 90% (ex ship)	per ton	16 0 0
" Chlorate	per lb.	0 0 8
" Cyanide, 98%	"	0 2 0
" Hydrate (Caustic Potash) 80/85 %	per ton	21 15 0
" " (Caustic Potash) 75/80 %	"	20 10 0
" " (Caustic Potash) 70/75 %	"	20 0 0
" Nitrate (refined)	per cwt.	1 2 6
" Permanganate	per cwt.	3 5 0
" Prussiate Yellow	per lb.	0 0 8 1/2
" Sulphate, 90 % (ex ship)	per ton	9 15 0
" Muriate, 80 % (do.)	"	8 0 0
Silver (metal)	per oz.	0 2 8
" Nitrate	"	0 2 10
Sodium (metal)	per lb.	0 3 4
" Carb. (refined Soda-ash) 48 %	nett per ton	5 10 0
" " (Caustic Soda-ash) 48 %	"	4 10 0
" " (Carb. Soda-ash) 48 %	"	4 10 0
" " (Carb. Soda-ash) 58 %	"	4 2 6
" " (Soda Crystals)	"	3 5 0
" Acetate (ex-ship)	"	16 0 0
" Arseniate, 45 %	"	11 0 0
" Chlorate	per lb.	0 0 8 1/2
" Borate (Borax)	net, per ton	28 10 0
" Bichromate	per lb.	0 0 3 1/4
" Hydrate (77 % Caustic Soda) (f.o.b.) net pr. ton	12 0 0	
" " (74 % Caustic Soda)	"	11 10 0
" " (70 % Caustic Soda)	"	10 15 0
" " (60 % Caustic Soda)	"	9 15 0
" " (60 % Caustic Soda, cream) (f.o.b.)	"	9 10 0
" Bicarbonate	"	7 0 0
" Hypsulphite	"	6 10 0
" Manganate, 30%	"	16 0 0
" Nitrate (95 %) ex-ship Liverpool	per cwt.	0 9 0
" Nitrite, 98 %	per ton	29 10 0
" Phosphate	"	15 0 0
" Silicate (glass)	per ton	5 7 6
" " (liquid, 100° Tw.)	"	4 5 0
" Stannate, 40 %	per cwt.	3 0 0
" Sulphate (Salt-cake)	per ton	1 2 6
" " (Glauber's Salts)	"	1 10 0
" Sulphide	"	8 10 0
" Sulphite	"	5 15 0
Strontium Hydrate, 100%	"	8 10 0
Sulphocyanide Ammonium, 95 %	per lb.	0 0 7
" Barium, 95 %	"	0 0 7
" Potassium	"	0 0 7
Sulphur (Flowers)	per ton	8 0 0
" (Roll Brimstone)	"	6 10 0
" Brimstone: Best Quality	"	4 2 6
Superphosphate of Lime (26%)	"	2 7 6
Tallow	"	28 0 0
Tin (English Ingots)	"	80 0 0
Tin Crystals	per lb.	0 0 6 1/4
Zinc (Spelter)	per ton	17 2 6
" Chloride (solution, 96° Tw.)	"	5 15 0

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oil.—Apply, J.P., *Chemical Trade Journal* Office, Manchester.

THE WESTERN RAILWAY.—The Directors
of the Company are prepared to RECEIVE TENDERS for the
supply of the following MATERIALS, viz:—

1. Gas Tar and Ammoniacal Liquor.
2. Hydrocarbon from Oil Gas Works.
3. Furnace Slag, Fetting and Mill Scale.
4. Dirty Grease.
5. Tarpaulin Cuttings and Sheet Ties.

in each case to be delivered as produced at the Company's works
near 1894. Specifications and forms of tender (upon which alone ten-
ders may be obtained of the Secretary at the Paddington Station,
as Superintendent at the Swindon Station. Tenders, addressed to the
and marked outside "Tender for Gas Tar," &c., as the case may be,
should be sent on or before Tuesday the 10th instant. The Directors do not bind
themselves to accept the highest or any tender.

G. K. MILLS, Secretary.

Station, London, December 1, 1893.

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CURRENT TOPICS.

PROFITABLE SMOKE WASHING.

IF the ideas of some of our noble legislators are
confused about the profits attached to the washing
of household smoke (and their deductions, made some time
ago, were truly not free from fallacy); still there are evidently
other persons who have somewhat different notions about
manufacturing smoke. In a measure such notions are
infinitely more correct than those held about the profitable-
ness of washing smoke from ordinary grates.

The patented means of merely annihilating smoke are
legion, and smoke washing at a profit is no news to some.
That is as far as the principle goes. We have no means of
testifying whether or no the profits have been forthcoming.
Another bid for success, however, has been made in this
direction, and for nine months the system has been operating
satisfactorily. The products are utilized and seem to find a
sale. As regards novelty there is little, such as there is lying
chiefly in the treatment of the products of the washing pro-
cess. The plant is very simple, consisting of a washing
chamber, containing a horizontal revolving scrubber over
which water trickles. The water escapes to a trough, and
circulates back to the scrubber, the carbonaceous matters
collecting at the top of the trough. A fan, forty-two inches
in diameter, draws the smoke from the chimney, and forces
it into the washer, from whence it returns to the chimney at
a point about thirteen yards above where it is aspirated off.

The wash liquor, containing sulphates of ammonia, iron,
and copper, is converted into a disinfectant, which is said to
be largely used now, and the carbon finds a market for uses
electrical. No information at present is given of the initial
cost, and also that of maintenance and working. Neither is
reference made to the relation between the foregoing costs with
the expenses for making the disinfectant, and the profits from
sales. But what is satisfactory is to record a process some-
thing more than ephemeral, and which not only makes
profitable products, but shows that they are really bought.

THE CARRIAGE OF EXPLOSIVES.

Between the discovery of dynamite in the Mersey, and
the explosion of compressed gas at Bradford recently, a good
deal of extra attention is likely to be paid to the carriage of
dangerous goods by railways and shippers for some time to
come, and those interested in explosives will do well to give
special surveillance to the conditions of carriage.

The railway companies at times, in ignorance, take things
which they otherwise would have nothing to do with, but the
perpetrator of an offence fares badly in the end. A fine of
twenty pounds has been inflicted recently for sending
ammonite detonators and safety fuzes packed in the same
case and insufficiently labelled, and also for sending more
than fifty pounds of explosive without the consent of a
Government Inspector. Such negligence often leads to
vexatious conditions being imposed, which, if ordinary care

was taken to conform with the restrictions already existing, would be uncalled for.

The dangers attending a departure from the proper methods of consigning such goods are cumulative. In this very case the goods were refused, and consequently, without knowledge of the contents, were knocked about the offices of the railway company who had acted as carriers of it, for several days. In dealing with explosives, the proverb "forewarned is fore-armed" possesses a specially cogent significance, and is exceptionally applicable.

THE LATE PROFESSOR TYNDALL.

Monday of this week saw the death of one of our ablest exponents of science. The battles fought by Professor Tyndall for physical science were many, and often hotly contested. If discussion be the life of science, a brilliant spark of that life has undoubtedly been extinguished, and what is more, extinguished under exceptionally sad circumstances; since medical evidence points to the fact that the late professor having been in the habit of taking narcotics regularly, unfortunately had administered accidentally an overdose of chloral, which resulted in the premature curtailment of his life.

The sphere of his work is too wide for detailed reference here, but those who have read such of his works as "Heat, a Mode of Motion," and his joint treatise with Huxley on "The Structure and Motion of Glaciers," will know how his loss is to be deplored, and how hard will be the task of filling the gap which his death has occasioned.

SOCIETY OF CHEMICAL INDUSTRY.

MANCHESTER SECTION.

A WELL-ATTENDED meeting of this section was held on Friday, December 1st, at the Victoria Hotel. The chair was taken shortly after seven o'clock by Dr. Schunck, who called upon Dr. Gerland to describe a balance, which was duly explained to the meeting.

The discussion of the proposed amendments of the Patent Law was the next item on the agenda. Considerable diversity of opinion seemed to exist about the advisability of some of the proposed alterations. The discussion was carried on by Messrs. Grimshaw, Dreyfus, Carpenter, and George E. Davis. It was finally decided, on the motion of Mr. Davis, that written proposals should be sent to the Manchester Committee as early as possible; this action in no way preventing the sending of suggestions direct to London. Mr. Grimshaw then moved a resolution that the Manchester Committee should present a report on the suggestions they received (before sending them up to London) at the next meeting, which resolution was also carried. Mr. J. Carter Bell then opened the discussion on the "Flash Point of Mineral Oils." He pointed out that the dangers of petroleum were dual, viz., in relation to storage and burning in lamps. The point of danger for storage is a few degrees lower than the Abel test, which is evidenced by using an apparatus with a cup nine inches wide instead of two. In stores, therefore, and even in tin cans, the flash point is the point of danger. With lamps the danger is one of explosion or when the lamp is overturned. When a lamp has burned for some time the oil gets heated 10 to 20 degrees, or more, according to the nature of the lamp. With an oil heated five degrees above the flash point, and the lamp overturned, the oil does not as a general rule catch fire, and at 10 degrees above the flash point the oil, if of low test, may catch fire or not according to the structure of the oil. The high flash oils do not catch fire unless heated more than 15 degrees above the flash point. Our standard of safety in this country is 73° Abel. As London had a temperature of over 90° for a long time last summer, the absurdity of this is apparent. The dangerous oil flashing at 73° can be stored in any quantity in the middle of cities anywhere. Other countries have very different arrangements for protecting the safety of the public. In Russia the standard is 82° Abel, in France and Belgium it is 95° Granier, in Holland 104° Parrish; in America it is only safe oils that are used, each city and State union having its own standard varying from 105° to 120° close test. Our own Government acknowledges the necessity for a high flash point by getting oil of 105° for the soldiers, and 145° for lighthouses. A consignment of oil for the soldiers, although it was 105° when tried in Scotland, yet because it turned out 104° as tested

by the Government expert, was returned, so that certain advisers of the Government were alive to the facts of the case.

The opinion of Mr. D. R. Stuart, who has given a great deal of attention to this matter, is not the opinion of a purely interested party, but of that of a large portion of the scientific world in the company of such men as Lyon Playfair, Atfield, Wallace, McAdam, and others, who all testify to the desirability of the flash-point being 100°. Testimony has also been borne to the advisability of a minimum of 110° Abel by various gentlemen possessing scientific knowledge in America. In Germany numbers of experiments have been made with the conclusion that the minimum for storage should be 122 F., while the plea that higher flash-point means increased cost to the poor is practically done away with, inasmuch as the increased cost of allowing only perfect safe oil to be sold would amount to not more than 1d. per gallon. Dr. Kedzie, of Michigan Agricultural College, in a letter which Mr. Bell read, stated that the legislators of 1893 placed the test at Michigan State at 120 F., with closed cup inspection, the oil companies had exerted powerful influence in favour of a low test, but the public safety withstood their efforts. The statement of the petroleum law in England, permitting the use of oils flashing at 73° Abel fills me with amazement. No such standard is adopted in any city of our union which has a law of inspection, and I think 110 F. is the lowest legal test in any of our States.

Another American authority at New Jersey says what we want is an oil that may be spilled on the carpet or fall from a broken lamp and not take fire from the burning wick falling on it. Life is very severe on the legislators of his own country, but his words apply equally to our own.

Mr. Bell also read some figures he had received with regard to the fires in London during the last three years. From the figures it appeared that in 1890, out of 2,555 fires, 271 were due to lamp explosions; there were 51 lamp explosions due to accidents to lamps; and the total number of deaths was 61, of which 15 were due to lamp accidents. In 1891 there were 290 fires due to lamp explosions, 46 lamp explosions caused by accidents to lamps, and 12 deaths due to lamp accidents. In 1892 there were 275 fires due to lamp accidents, 82 of which were due to explosions caused by accidents to lamps, and 16 deaths resulted.

Mr. George E. Davis said he thought that the law should require vendors of petroleum to affix a label setting forth what the flash point (and consequently dangerous point) really was. It by no means followed that because a high price had been paid for a lamp oil, that a high test oil was always supplied. Personally he had found in 1879, when burning oil in a glass reservoir, that the temperature of the oil left in the lamp after burning six hours was 74° F., and with a copper reservoir 85° F. On distillation the oil showed itself to have been somewhat different from most oils. He thought a margin of 15° between the flash point of the oil and the highest temperature actually reached in the lamp was not an extravagant allowance. Raising the flash point from 73° to 100° F., did not mean he had found from the statistics he had collected, a serious increase in cost to the poorer consumers in any way. From a number of samples collected, chiefly from shops in the "slums" the following may be cited as typical instances.—

BRAND.	FLASH POINT.	PRICE PER QUART.
Petrolene	122° F.	2d.
Strange's Al.	105°	4½d.
Crystal Safety	88°	1½d.
Royal Daylight	76°	1½d.

He thought it was not probable that a temperature of more than 84° F. was reached in an ordinary cottage lamp, but what would be the result if oil makers all availed themselves of the lowest limit allowed them by law? He called special attention to the likelihood of accidents arising through careless mistakes being made between the sale of petroleum and benzoline by the vendors, and cited a case in point.

Mr. Powell said he had examined a number of Scotch, Russian and American oils. He had also taken samples of burning oils from the storage tanks in which the oils were kept. He stated that he had been unable to get a higher flash point than 74° Abel for an oil which was used to supply 90% of the amount of burning oil consumed in Manchester.

Mr. Carpenter thought it would be very interesting to have some information about the flash point being lower with a nine-inch cup, as the conditions were in much closer relation to those prevailing in a lamp. After further discussion, Mr. Powell moved: "That in the opinion of this meeting the legal flashing point of burning oil sold in this country is considerably too low, and that it should be increased to a standard of not less than 100° F., Abel standard.

Mr. Hodgson seconded the motion, which was carried. Mr. Dreyfus put an amendment, which was lost.

Mr. Geo. E. Davis in introducing the question of the "Use of Oil as a Fuel," said a large number of oil burners had been used during the recent coal strike, and their sudden disappearance now the coal strike was over proved more than any statement he could make that oil was less advantageous than solid fuel. He then outlined the various methods which have been employed for burning the oil. From his own experiments, the air supply being carefully regulated by the amount of CO_2 in the waste gases he had found the following quantities give equal heating values:

Coal	...	...	1,456 lbs.
Coke	...	...	1,624 "
Gas (debenzolisied)	...	...	25,000 cubic feet.
Creosote	...	...	831 lbs.

The regulation of the draught in using spray burners was a most important point. His own impression, judged from the results of many experiments, was that the correct way to burn liquid fuel was by means of compressed air. Messrs. Irvine, Dreyfus, and Powell also took part in the discussion.

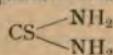
THIOCARBAMID.

SUCH is the name of a new preparation for clearing and removing stains from negatives, which is being introduced into this country by Messrs. Fuerst Bros., of 17, Philpot-lane, London. It is very often noticed that the gelatine layer of negatives and positives assume discolourations through the use of certain developers, or when old fixing solutions are used. This discolouration makes such negatives or positives undesirable. For bromide enlargements, for instance, which are still, to a great extent, developed with ferrous oxalate, it is necessary to use a special clearing bath to prevent the yellow staining, which would invariably take place. To remove these and other stains, this new preparation in acid solution is specially suitable, and has the advantage (whilst leaving the image absolutely untouched) of bringing about a permanent removal of stains or discolourations, which cannot be said of other similar mediums. Its application is as follows:—The negative or paper print (bromide or chloride silver plates and papers) are previously fixed with hypo, and after the hypo has been thoroughly removed by washing, the negative or paper print is put into the following solution until the discolouration or stain has disappeared:—

300 grains thiocarbamid.
150 " citric acid.
1 quart of water.

Another solution may be prepared by mixing—
300 grains thiocarbamid.
300 " alum.
150 " acetic acid.
1 quart of water.

The formula of this preparation is as follows:—



The solution can also be used for fixing silver chloride negatives and positives. It should be noted that an alkaline solution is inadmissible.

RIVER POLLUTION AT MACCLESFIELD.

AT the Macclesfield Borough Police Court last week proceedings were taken by the Mersey and Irwell Joint Committee against the Macclesfield Town Council for causing and knowingly permitting to fall or flow into the River Bollin liquid sewage matter, contrary to the provisions of the Act.—Mr. E. A. Parry, barrister, of Manchester, stated the case for the prosecution. He complained that the Council had had various periods of grace in which to finish their arrangements, and now, he understood, they had abandoned their first scheme, and were about to begin *de novo*. He asked for a maximum penalty to be inflicted, and for an order to compel the Corporation to take proceedings to abate the nuisance within six months.—Mr. W. F. Taylor, town clerk of Macclesfield, for the defence, contended that the grounds on which the proceedings were taken by the Mersey and Irwell Joint Committee were wholly unjustifiable. One false step, he said, might possibly mean a loss of some thousands of pounds to the borough. He explained the position of the Corporation with regard to the adoption of a scheme of precipitation and filtration. This was, he said, to be carried out on the land for which they had provisional orders for purchase, and a sub-committee had been appointed to carry out the scheme. The magistrates decided that there had been negligence, but they thought a fine of £5 in each case, and costs limited to £5, would have the desired effect. They gave six months for the work to be commenced and proceeded with, but they would have the power to grant a further extension if they thought necessary.

MAKING PORTLAND CEMENT IN CHINA.

CONSIDERABLE quantities of Portland cement are manufactured at a place called Tongshan, about 80 miles from Tientsin. Consul Brennan says that the raw materials used at the Tongshan works are mountain limestone, fire clay, marl, and a rough kind of China clay, all of which are found in the immediate neighbourhood of the works. The fuel used is hard furnace coke, made on the premises from the local bituminous coal. The process of manufacture is somewhat more elaborate than that adopted in the Thames works, much greater care and attention being necessary to ensure the production of good Portland clinker. The limestone and clays have first to be reduced an almost impalpable powder. Their respective analyses being ascertained, it is then passed through the brush mill, from whence it is pumped into the "backs," to be eventually moulded into bricks for burning into cement in the kilns. The greatest possible care has to be exercised at the washing part of the process, by reason of the limestone and clays being so variable in quality as they are delivered into the works, an analysis of the slip being necessary every half-hour or so. Owing, however, to the different densities of the raw materials used, they settle down in the "backs" in their distinctive strata, and before the brick moulding can be done, it is necessary to thoroughly turn over the "slurry" with the shovel, and tread it well under foot in order to obtain a uniform mixture. The bricks are then transferred to the drying ovens, and in due time taken to the kilns for conversion into Portland cement clinker. Nothing but true clinker is ground at the Tongshan works. The resulting Portland cement is of great density, viz., 158 pounds per bushel. The present output is 300 tons per week, and that is the limit of the capacity of the work. It is all used at the various works of the Imperial Government, viz., harbours, forts, Yellow River Embankment, railways, arsenals, &c., very little finding its way into the hands of private consumers. There is every probability that the demand will soon be largely in excess of the existing works. The cement is guaranteed to yield a tensile strain of 400 pounds per square inch, after having been immersed in water for seven days; and as a matter of fact it invariably tests much higher. Every day's work is tested in the following manner: The man in charge of the grinding draws a sample from each pair of millstones every half-hour. At the end of the day the whole is mixed uniformly and taken to the testing-room. It is there tested for fineness, and twelve test briquettes are made from the same, 23 per cent. of water being used in gauging the cement. After standing in the moulds for 24 hours—note having been made of the time occupied in "setting"—the briquettes are each marked and placed under water for seven days, each being examined from time to time for any signs of blowing or shrinkage, the usual glass test being adopted as well; at the expiration of this time they are taken direct from the water and tested for tensile and compressibility in patent cement-testing machines. If the cement passes the tests it is handed over to the storekeeper for delivery. At the time of delivery it is again sampled and tested, and a record of each test is kept. For some considerable time difficulty was experienced in obtaining cement of uniform quality. It was no easy matter to get the ignorant Chinese coolie to understand the absolute necessity of accuracy and carefulness in every stage of the process. No reliance whatever could be placed upon the native foreman, nor any assistance expected from them, their ideas being as lax and crude as those of the coolie. But by dint of perseverance and keeping to one set of men, something like system has been established, and the work technically proceeds with the utmost satisfaction, the output being as uniform in quality as it is possible to obtain anywhere. The fuel (furnace coke) employed in the kilns was also a great source of trouble at first. In order to effect its combustion, a very free passage of air is necessary; but unless the greatest care is exercised at this stage of process, the heat produced is so intense that complete fusion at once takes place at the very bottom of the kiln, thus shutting off all draught—in other words, the decarbonisation and subsequent fusion of the upper layers of the kiln is arrested. By the introduction of air passages throughout the depth of the kiln, this difficulty has been completely overcome, and the even and uniform clinkering of the entire mass is now effected with great regularity, 48 hours being sufficient for a 90-ton charge. Owing to the severity of the winter, it is not possible to do any mixing for four months in the year, so that the output is limited to about 9,500 tons per annum. The works are kept in operation 16 hours a day, including Sundays.

CHEMICALLY "FACED" TEA.—The teas exported from China and Japan are nearly always "faced" with some mixture to impart a colour or gloss to the leaves. The preparations employed for this purpose contain Prussian blue, turmeric, indigo, and plumbago. Damaged and imperfect leaves are treated in this way to improve their appearance. The substance most commonly used for black teas is plumbago—black lead.—H. and C. Mail.

Paper Makers' Column.

VEGETABLE PARCHMENT :

ITS PROPERTIES, USES, AND MANUFACTURE.

(Specially contributed.)

(Continued from page 341.)

THE MANUFACTURING PROCESS.

THE machine used for conveying the roll of bibulous paper through the several troughs is constructed of materials which will resist the corrosive action of the sulphuric acid. In general arrangement it is not unlike an extensive tub-sizing apparatus, with this difference that the web after passing through the acid and other troughs is cleansed with water as it passes over a platform of wooden rollers. These and all other rollers are driven with ordinary belt gearing in the same way as a paper machine. The trough containing the sulphuric acid is the first of the series, and is immediately followed by another which contains dilute acid after the process of parchmentising has been going on for a short time. These troughs are made of wood and lined with sheet lead. The rolls for guiding the paper through them, some of which are submerged in the liquids, are made of glass or porcelain, or some such acid resisting material, while the press rolls, placed above the troughs, used for gently squeezing the excess of acid from the web are made of a special kind of india-rubber. These rolls, as may be imagined, are expensive, and on that part of the machine where it becomes possible, viz., where the washing begins, they are substituted with hard wooden rolls. The washing is usually effected by directing jets of water from a series of spray pipes, placed at equal intervals along the machine, but running across the web of wet parchment. These water pipes play upon the top and under surface of the parchment, the latter being supported by a platform of wooden rolls as mentioned above. Beneath each washing platform a large wooden trough is placed to receive the slightly acid (or alkaline) wash water, and at the further extremity of each trough a pair of press rolls presses the excess of water from the sheet before it passes on.

After the web of paper has passed through the acid bath, squeezed and partly washed by passing through a water trough and over the first washing platform of rolls, it would still retain a very large amount of acid, and if this acid were left in the parchment rapid destruction of the product would follow. For many years, however, the acid thus left in the parchment at this stage of its manufacture has been neutralised with ammonia. For this purpose an ammonia bath, consisting of a small wooden trough containing diluted ammonia, is placed between the first and second washing platforms or troughs. It contains a submerged roll, under which the parchment passes to thoroughly saturate it with alkaline fluid. The parchment, after travelling through it, runs over a roller placed above the level of the liquid, and from thence into the water of the next washing trough, into which it simply dips, and then, passing upwards, travels over the horizontal platform of rollers, where it is further washed on both sides with the water sprays. At this stage the web is tolerably clean or free from ammonia salts, but to be perfectly sure that this is so it is again pressed between a pair of small rubber rolls to partially dry before it is plunged into the next washing trough in the series. It then passes over another platform of rollers as above described, and, finally, again pressed to get rid of the excess of water before it is dried on the drying cylinder.

The drying cylinder (sometimes more than one is employed) is constructed in the same way as those of an ordinary paper machine, the wet parchment being held against its surface by the aid of a felt. There is also a pair of glazing rolls with which the parchment is glazed before it is reeled.

The first operation in the manufacture of the parchment is passing the prepared paper through the acid bath. To do this successfully and easily it is necessary to have proper arrangements for filling and emptying the acid bath. The oil of vitriol or sulphuric acid is usually mixed to the required strength in a separate vessel, where it is stored ready for use, and from which it can be conveyed by gravitation to the working bath on the machine. This store tank is sufficiently large to hold a good supply of acid. The acid is mixed by hand; and as its specific gravity should be maintained at a constant figure, owing to its hygroscopic nature, it should not be allowed to remain exposed to the air for any length of time. In some works, pumps of special construction are used to convey the acid from one vessel to another; but this is said to be a costly and unpleasant method.

The oil of vitriol prepared for the acid bath should possess a Sp. gravity of 1.636 (127° Twad. or 56° Baumé), and be uniformly mixed. This acid contains, substantially, 72% real anhydrous sulphuric acid, and 28% of water. Ordinary 80% (145° Twaddell) oil of vitriol may be used to make the mixture, but in every case special attention must be paid to its temperature before it is run down to the acid bath. This should never be allowed to exceed 62° Fah. (17° Centigrade), otherwise its action upon the paper is too severe. It is sought in actual practice

to keep the acid as cool as possible, and to avoid rapid changes of temperature. To accomplish this conveniently, many different schemes are in vogue. Some makers, in order to regulate the temperature, and to insure that the acid is cold, passes it through a pipe immersed in a stream of cold water, while others introduce cold water coils of lead pipe in the store tank, and also in the working bath. In any of these cases the temperature can be regulated sufficiently well, provided the supply of cold water is efficient.

It is usual, however, to make the acid a little stronger to begin with, viz., 1.665 sp. gr., in order to make allowance for its hygroscopic properties, etc. To ascertain whether it acts well, the workman draws a piece of the raw paper through it whilst in the bath on the machine. By experience he can tell if it is in proper condition. If the raw paper has been well made and of good quality, and all other conditions in proper order, little difficulty will be experienced in passing the beginning of the endless roll through the acid bath and over the other parts of the machine. It would be difficult for the novice to tell whether he was bringing forward good paper, or making parchment which was quite unsaleable. The experienced parchment maker can, however, tell what it really is whenever it leaves the acid bath. With this speciality it is not as in other papers where the machine plays an important part in their manufacture. Success lies more in the direction of the condition and quality of the raw paper and acid mixture.

Obviously, it is of the highest importance to apply only as much of the acid as is necessary for the preparation of a good product, because in this there is great economy. Care is therefore taken not to use more acid than is absolutely necessary to yield the desired result. The paper as it unrolls from the reel, dips into the acid bath, and after the excess of acid has been scraped and squeezed from it, it passes into the first washing trough, at an angle of about 60°. The wash-water contained in this trough very soon becomes strongly acid, and on the score of economy is preserved to be concentrated for re-use. It is also apt to become hot, owing to the fact that sulphuric acid generates heat when diluted with water; care must consequently be taken that the temperature is kept low. Many works intercept a part of the working acid in the second and third troughs and reconcentrate it in leaden pans, but it depends upon the proportion of acid thus caught and its strength as well as upon the cost of fuel and the situation of the works whether such a system of acid recovering pays or not.

The speed of the machine is also of great importance. This should be maintained at a uniform rate of speed, otherwise the parchmentising, washing, and drying are somewhat uncertain. The level of the acid, too, in the acid bath is maintained constant, so that when the speed of the machine is once fixed, the depth to which the paper passes into the bath is a measure of the time given for parchmentising.

There are many other points to which attention should be paid when drawing the raw paper through the acid. This work is greatly facilitated if the reels are free from faults and otherwise perfect. The presence of moisture in the paper, or water getting into the acid bath, causes much trouble. Many stoppages are caused if the web is not continuous, and if any broken pieces are made during the parchmentising process or in the subsequent washing, neutralising, and drying, etc., these result in a serious loss, as they cannot be worked up again like "broke" in ordinary paper-mill practice. When the sheet of paper passes equally through the acid the washing sprays are allowed to play equally upon both sides of the sheet, and if the machine is not arranged so that this can be done efficiently, the faults produced cannot afterwards be removed. The paper must be treated in accordance with its thickness and breadth, and this can alone be properly done by the experienced parchment-maker having a thorough knowledge of the nature and peculiarities of the raw material and condition of the machine he is working.

The web of parchment, after passing through the ammonia bath, is slightly alkaline, the whole of the acid being "killed" by the ammonia. It is only necessary, therefore, to ensure that it is thoroughly washed to get rid of "fixed" ammonia salt (i.e., sulphate of ammonia) and a little free alkali before it is finally dried and glazed. A copious supply of water is therefore used to thoroughly cleanse the parchment at this stage, and after excess of water is squeezed from the sheet by a pair of rubber press-rolls it passes over the drying cylinder, then through a pair of iron glazing rolls before being finally wound on a reel. The prepared parchment is then cut up into suitable sized sheets and placed on the market in reams.

CARAMEL FROM BREWERS' REFUSE.—The following is a process forming the subject of a recent patent for making caramel or sugar-colour for cookery purposes from brewery and distillery waste. The refuse is passed through a filter made up of cellulose, bone ash, and burnt magnesia, after which it is evaporated down in vacuum pans and caramelised in roasting pans. Water is then added to the roasted residue, which is boiled with soda and milk of lime. The liquid is ultimately filtered and boiled with glycerine until it acquires the requisite colour and consistency.

Legal Intelligence.

HIGH COURT OF JUSTICE. QUEEN'S BENCH DIVISION. (Before Justices Wills and Wright.)

DEAKIN v. THE SALT UNION.

JUDGMENT has been delivered in this case, particulars of which were given in this *Journal* (No. 340, p. 339). Their Lordships said that in their opinion there had been a breach of the agreement so far as regarded the commission allowed to the plaintiff, and that they saw no reason why prices in the Runcorn agreement should not be prices in the ordinary sense of the word. They were of opinion, therefore, that in respect to prices as well as commission there had been a breach of the agreement of the 27th November, 1888, and that the case must go back to the Official Referee for a reconsideration with reference to the principles laid down in his judgment. It was agreed that he shall not consider the case pending another appeal by the Salt Union.

LANCASHIRE COUNTY POLICE COURT. (Before Mr. Leresche.)

AN INSANITARY WATER SUPPLY.

John Bibby, farmer, Burnage, was charged recently on a summons with obstructing an official of the Withington Local Board in the execution of his duty. Mr. Crofton, who appeared on behalf of the Local Board, stated that the defendant was the owner of four houses, the tenants of which obtained their water from a well. A sample of the water was analysed and was found to be unfit for domestic use. A notice was served upon Bibby in May last, informing him of the condition of the water, and instruction was given that he must supply the houses with water from the Corporation main. As he did not comply with the order an official went to the farm and saw the defendant, who became excited and threatened to shoot anyone who attempted to lay a water-pipe. On the 3rd of November Mr. Mountain, surveyor, and two men went to the farm for the purpose of putting down the water-pipe. One of the men put a spade into the ground, and Bibby, coming upon the scene pulled it up again, and prevented the men from doing their duty.—Evidence was called which bore out this statement.—The defendant now stated that he did not intend to shoot the men. He had had the water from his well analysed and it was found to be all right. One of his tenants had been drinking it for thirty years, and two others for twenty years, and they were all right. He only told the men that if the pipes were laid he would do the work himself.—Mr. Crofton stated that in these very cottages there had been an outbreak of scarlet fever and diphtheria.—A fine of £5 and costs was inflicted, making £9 14s. 6d. in all.

Parliamentary Jottings.

THE USE OF EXPLOSIVES IN METALLIFEROUS MINES.

In the House of Commons on Monday, Mr. Asquith stated, in reply to Mr. Carvell Williams, that he believed that 5lb. packets of explosives were used in metalliferous mines, but the practice was not legal. Mr. Dickinson, the late inspector, was of opinion that the 5lb. packets were not only safer but more convenient than 4lb. packets, and he (Mr. Asquith) hoped to be able to propose an alteration of the law that would allow of the use of these 5lb. packets.

COAL EXPORTS DURING THE STRIKE.

On Tuesday, Mr. H. R. Farquharson asked the President of the Board of Trade what quantity of coal was exported during the recent coal miners' strike.

Mr. Mundella replied that the monthly Board of Trade returns showed that the total amount of coal exported (including the bunker coal of steamers in the foreign trade) during the four months August to November inclusive was 12,087,000 tons in 1893, as against 14,397,000 tons in 1892, showing a falling off of 2,310,000 tons.

Mr. Jackson: Will the right hon. gentleman be good enough to say whether he has any information as to coal being imported?

Mr. Mundella asked for notice.

SUICIDE FROM CARBOLIC ACID.

Mr. Macdonald asked the Home Secretary recently whether, in view of the increase of suicides from carbolic acid, he would instruct the coroners under his control, in their returns, to state on the certificates which they sent to the Home Office the name of the poison by which the suicide was effected, with a view of attracting public attention to the matter?

Mr. Asquith: I have considered this matter, but do not find any sufficient reason for introducing the proposed change.

Correspondence.

***We do not hold ourselves responsible for the opinions expressed by correspondents.*

THE FATAL GAS CYLINDER ACCIDENT AT BRADFORD. (To the Editor of the Chemical Trade Journal.)

SIR,—As the inventor of the well-known seamless gas cylinders, of which so many thousands are now in use, I trust you will allow me a little space for the purpose of reassuring the public as to the safety of the high pressure gas system if properly carried out.

It is now seven or eight years since I first introduced my cylinders to Messrs. Brin's Oxygen Co., Limited, and the result has been beyond my most sanguine anticipations. Naturally, success with this speciality, as with others, has tempted competitors to offer cheap articles made by modified processes for the evasion of my patent.

Being so particularly interested in the subject, I made it my business to be present at the inquest at Bradford. I there saw the fragments of the exploded cylinder, which I have no hesitation in declaring was not made by my process, or of the class of material I have always found necessary. The parts of the broken cylinder appeared as brittle as glass, and the cylinder had been made evidently by some irregular punching process, from a very high carbon, but common quality, steel. I believe the carbon was as high as .5 per cent. Such steel in any case has a very limited ductility, but when cold drawn, and unannealed, it contains within its own substance, irrespective of any gas pressure, very severe and irregular strains.

The cylinders so crucially treated by Professor Goodman, viz., let fall 22 feet, when fully charged with gas, on to a heavy iron plate, and also burst at a pressure of 3 tons per square inch, were made by my process.

Anticipating the extreme danger to the public of the use of inferior cylinders, I some months ago, when I found them being put on the market at prices we could not look at, specially urged the Board of Trade to appoint Government inspectors to examine, test, and approve all cylinders, as is done by the German Government. I am sorry to say that at that time Mr. Mundella would not agree to any arrangement being made. However, this matter has since been taken up at my request by one of the Members of Parliament for Birmingham, and I am in hopes that action will now be taken.

It may not be uninteresting to record the following essentials for producing perfectly reliable cylinders:

In the first place, steel of the finest, but mildest quality is specified. The carbon of this steel is .15 to .2 per cent., and must never exceed .25 per cent. The tensile strength must not exceed 34 tons per square inch. The extension (ductility) must be at least 27 per cent. on a length of 2 inches before fracture and the reduction of area at point of fracture 40 per cent.

The steel is thoroughly worked by rolling and cross rolling into plates of considerable thinness. These plates are then sheared into circles of suitable size. By hydraulic pressure these circular plates are first made into "cups," and subsequently into short thick tubes with one end closed; up to this point the steel is worked hot. The final operations are conducted cold. After each operation the metal is carefully annealed and then again drawn out until a cylinder of the desired length results. At a certain stage of the operations the article is subjected to a bursting stress of two tons per square inch to ascertain if there are any hidden defects. Finally the cylinders are annealed and tested to 1½ tons per square inch, which is well within the elastic limits of the material.

Cylinders made in this way will stand any amount of rough usage. They will bear destruction tests up to 3 tons per square inch, in course of attaining which they become considerably bulged or swelled, thus proving the ductility of the metal.

The standard working pressure is 120 atmospheres (1,800lbs.), or about ¾ ton per square inch. The German Government, however, work these cylinders up to 160 atmospheres (2,400lbs.).

The only authorised makers of cylinders made by the process as described are the Endurance Seamless Tube and Vial Co., Limited, and Samuel Walker, both of Birmingham.—Yours, &c.,

HOWARD LANE.

Birmingham, December 2nd, 1893.

PREPARING ACETONE.—The manufacture of acetone by the destructive distillation of acetates of strontium and magnesium is, according to a patented process, conducted as follows:—The products of the destructive distillation are lead through or over, potash, soda, lime, or barium hydrate, the carbon dioxide being thereby removed, the unabsorbed acetone being condensed in the ordinary manner. The crude acetone absorbed by the alkaline scrubbing solutions is expelled by a current of steam. The bye-products of the distillation are also utilised.

THE MERSEY AND IRWELL JOINT COMMITTEE.

THE usual monthly meeting of this Committee was held on Monday last at the offices, Mosley-street, Manchester, at 2.30 p.m. Alderman J. Thompson presiding.

The first business of the Committee was the consideration of the report of the Chief Inspector (Mr. R. A. Tatton), who reported upon the position of Ramsbottom, Droylsden, Aspull, Chatterton, Middleton, Gorton and Whitefield. In the various cases plans were either before or being sanctioned by the Local Government Board, and in all cases satisfactory progress was reported.

MANUFACTURERS' POLLUTION.

The progress made by manufacturers was reported to be satisfactory, and a large number of works for purifying the waste waters are at present in the course of construction.

With regard to the pollution from Derbyshire, the Clerk (Mr. Hulton) gave his opinion that Section 8 of the River Pollution Prevention Act of 1876 gave the Joint Committee power to institute proceedings for offences committed either within or without their district, but as a question of fact it will have to be shown that the offence, wherever committed, must pollute or interfere with the due flow of the stream actually flowing through the district of the Joint Committee. Mr. Tatton reported that the number of manufacturers in Derbyshire who were polluters number 33, viz., seven print works, six dye works, eight bleach works, five paper works, six chemical works, one unclassified. The pollution from Derby is very considerable, and it was only fair to local authorities and manufacturers lower down the river that more active means should be taken to prevent pollution than the Derbyshire County Council seemed likely to adopt.

REPORT OF THE CONSULTING SUB-COMMITTEE.

Mr. Killick then presented the report of the above Committee, which was adopted *nem. con.*, the recommendation being as follows:—

Ramsbottom.—This Authority is in correspondence with the Local Government Board as to certain amendments which the latter require to be made in its Sewage Scheme. The Sub-Committee therefore recommend that an extension of time for one month be given them to meet the requirements of the Local Government Board.

Droylsden.—Mr. Tatton reports that this Authority are making progress with their works. The Sub-Committee therefore recommend that an extension of time for one month be given them.

Aspull.—There appears to be some delay in the carrying out of a satisfactory scheme for part of this district, owing to the extension about to be made in the Wigan Corporation Sewage Farm. The Sub-Committee therefore recommend that an extension of time for one month be given them, and that they be informed that at the expiration of that period they must be prepared to lay before the Joint Committee definite information as to the agreement between themselves and the Corporation of Wigan as to the treatment of their sewage.

Chadderton.—This Authority, on the 14th August last, were granted three months to commence the construction of their outfall works, and the Sub-Committee has to report that they consider they have made very unsatisfactory progress. They, however, recommend that a further extension of time for one month be given them, during which period they must make application and submit a scheme and plans for outfall works to the Local Government Board, and that failing this being done proceedings be taken.

Middleton.—A Local Government Board Inquiry as to the sewage scheme for this district was held on the 30th November. The Sub-Committee therefore recommend that an extension of time for two months be given them to hear the result of the same.

Gorton.—This Authority has now advertised for tenders for a sewage scheme. The Sub-Committee therefore recommend that a further extension of time for one month be given them, during which period they must let the same.

Whitefield.—The decision of the Local Government Board with regard to the proposal to transfer the Stand-lane district to Radcliffe has not yet been made known. The Sub-Committee therefore recommend that the hearing of the summons which has been issued against the Local Board be again adjourned for one month. The Sub-Committee have had before them certain letters which have been forwarded from the Corporation of Manchester, complaining of pollution to the Cringle or Black Brook, in the districts of Heaton Norris, Reddish, and Levenshalme. The matter has received the attention of the Inspectors, and Mr. Tatton has informed the Sub-Committee that he has traced the pollution complained of and drawn the attention of the Authorities named to the matter. The Sub-Committee therefore recommend that a letter be sent to the Town Clerk of Manchester, informing him of the same.

Pollution in Derbyshire.—The Sub-Committee have considered Mr. Hulton's opinion upon the position of the Committee with regard to pollutions arising in Derbyshire (*vide* Chief Inspector's Report), and they recommend that the same be adopted and acted upon, and that

two months' notice of the intention of this Committee to take proceedings against them, for offences against the "Rivers Pollution Prevention Act, 1876," be served upon the following local authorities, namely:—Glossop Corporation, New Mills Local Board, Glossop Rural Sanitary Authority, Hayfield Rural Sanitary Authority, and Chapel-le-Frith Rural Sanitary Authority.

REPORT OF THE CHEMICAL SUB-COMMITTEE.

Alderman Walmsley presented the following report on behalf of the above Committee, which ran as follows:—

J. Jackson.—This manufacturer has engaged an engineer to carry out the scheme for the treatment of his effluent as soon as possible. The Sub-Committee therefore recommend that an extension of time for three months be given him to complete the same.

W. Hall and Co.—This firm have written saying that they have prepared a scheme, and will shortly have the same in working order. The Sub-Committee consider that they are making satisfactory progress, and they recommend that the consideration of their position be adjourned.

R. Ashworth and Son.—This firm have now completed the tanks which they were erecting, but as the mill is not working at present, they state that they will use them as soon as they start again.

E. Ashworth and Co.—The Sub-Committee recommend that the consideration of the position of this firm be adjourned.

J. F. Hill and Co.—The Sub-Committee recommend that an extension of time for three months be given this firm to carry out certain works proposed in their letter.

Melland and Coward.—This firm have failed to make arrangements with the Corporation of Manchester to take their waste effluent into the sewers. They state, however, that they have now written for estimates to treat their waste in tanks. The Sub-Committee therefore recommend that an extension of time for three months be given them to complete the necessary works.

S. Barlow and Co.—At Stake Hill this firm have works in operation, and they state that they are willing to carry out similar works at Moston. The Sub-Committee, therefore, recommend that an extension of time for three months be given them to complete the same.

Bury Paper Making Company.—This firm have promised to construct the necessary tanks for the treatment of their effluent. The Sub-Committee therefore recommend that an extension of time for three months be given them to complete the same.

G. Lawton.—The Sub-Committee recommend that the consideration of the position of this firm be adjourned.

R. Schofield.—The solicitors of this firm have informed the Sub-Committee that they will, if necessary, take action to enforce their agreement with the Rochdale Corporation. The Sub-Committee therefore recommend that three months be given to allow the claim to be prosecuted and efficient provisions made.

Richard Ashworth.—The Clerk has reported to the Sub-Committee that this manufacturer has, since the last meeting of the Joint Committee, given the required undertaking to carry out efficient works for the treatment of his effluent within three months.

Lancaster, Ferguson, and Co.—This firm have also written to the same effect, and state that the works for the treatment of their effluent are now nearly finished.

The Sub-Committee have considered the position of the eight manufacturers with regard to whom the Local Government Board have given their consent to proceedings being taken, and they have to report upon their position as follows:—

J. Hill and Co., Sharvelough, Rochdale.—Since the Local Government Board Inquiry, this firm have constructed additional filters.

With regard to the Lower Works at Coprod, they have not yet taken efficient steps to purify their effluent. The Sub-Committee therefore recommend that notice be given them that they must be prepared to purify the same in three months.

W. Clegg, Milnrow, Rochdale.—This manufacturer is now carrying out works, and Mr. Tatton reports to the Sub-Committee that he has made good progress with the same since the Local Government Board Inquiry. The Sub-Committee therefore recommend that it is not necessary to take any action in this case at present.

Kerr and Hoegger, Newton Heath.—Mr. Tatton reports that this firm are also making progress in the construction of tanks for the treatment of their effluent. The Sub-Committee therefore recommend that no proceedings be taken against them at present.

The Handforth Printing Company.—Since the Local Government Board Inquiry into the case, additional tanks are being constructed, but Mr. Tatton reports to the Sub-Committee that they might have made more progress than they have done. The Sub-Committee therefore recommend that a letter be sent to the firm informing them that the Joint Committee have delayed issuing a summons against them this month, but that they will do so next if very much more progress is not made in the carrying out of the works.

Jowett, Waterhouse, and Co., Keyton.—This firm are sinking a shaft for the purpose of finding some old mine workings to pour their effluent

down. The Sub-Committee therefore recommend that proceedings in this case be adjourned for the present.

W. Rumney and Co., Stubbs, Ramshot.—This firm, since the Local Government Board Inquiry, have constructed two tanks, and they now state that their effluent will very probably go into the Ramshot sewers. The Sub-Committee therefore recommend that in their case also no proceedings be taken at the present.

John Whitehead, Eton, near Bury.—The Sub-Committee are not at all satisfied with the steps this manufacturer has taken since the Local Government Board Inquiry, and they therefore recommend that the Clerk be instructed to take proceedings against him forthwith.

Hollingsworth Print Works.—This firm are not taking what appears to the Sub-Committee to be satisfactory steps for the treatment of their effluent, and are simply constructing a very inefficient tank by the edge of the river. The Sub-Committee therefore recommend that in this case also the Clerk be instructed to take proceedings against them forthwith.

Messrs. J. Hargreaves, George Clough, W. Broadbent and Sons, Ltd., who for various reasons did not appear before the Committee at their last meeting, were dealt with also in the report. Satisfactory explanations being given by the two former, the resolutions recommending proceedings being taken were rescinded. Messrs. Broadbent and Sons wrote undertaking to have efficient settling tanks in working order within three months.

Thirty-nine manufacturers, chiefly bleachers and dyers, were, upon the recommendation of the Sub-Committee, invited to appear before the Joint Committee and show cause why proceedings should not be taken against them, the Committee not being satisfied with the action they had taken.

Monday, 22nd January, 1894, at 11 a.m., was named for dealing with these cases.

The other items of the report were adopted as they stood.

Mr. Haslam then moved "that it was desirable for the Chemical Sub-Committee to consult with local authorities with a view to the removal of the solids which collected in the settling tanks of manufacturers, and to report thereon to the next meeting."

After a short discussion, in which the Chairman and Mr. Walmsley took part, the motion was carried.

The Clerk recapitulated to the Committee the results and fines imposed in the last seven summonses which had been heard recently. A lively discussion followed, in which Mr. Cheetham (Mayor of Rochdale), Mr. V. K. Armitage, Mr. Hillick, and Mr. Brierley (Bury) took part. The discussion dealt with the paucity of the fines inflicted in cases where conviction was carried.

Mr. Armitage said the fines imposed in the case of Bury were a farce. It was well known the Corporation had been boasting that it would be cheaper to carry the litigation even to the House of Lords than to pay the interest on the money which would have to be borrowed to defray the cost of purifying their sewage.

Mr. Brierley (Bury) said it was his first appearance as a member of the Committee, and he came not to obstruct but to assist the work which the Committee purposed to do. (Hear, hear.) They had at Bury a new committee, and he hoped, despite the obstruction of the Local Government Board, they would in due time have a scheme which would be satisfactory to the Committee, without being unduly costly to the ratepayers of the borough.

The Committee then rose.

THE GAS SUPPLY OF LONDON.

THE quality of the gas supplied to the City of London for the week ending November 25th, 1893, was good. According to the report of Mr. W. J. Dibdin, chemist and superintendent gas examiner to the London County Council, the tests made at the various testing stations showed no deficiencies in illuminating power. The following figures have been prepared from the report, and show the average composition of the gas calculated on the mean test:—

Company.	No. of districts tested.	Illuminating power (in stand. sperm candles)	Sulphur. Grains in 100 cb. ft.	Ammonia. Grains in 100 cb. ft.	Sulphuretted Hydrogen
		Mean average.	Mean average.	Mean average.	
Gas Light and Coke Co.	12	16'35	11'37	0'30	Nil.
South Metropolitan Gas Co.	6	16'36	10'03	0'25	Nil.
Commercial Gas Co.	2	16'25	8'60	0'55	Nil.

The standard gas supplied by these companies should have an illuminating power of 16 sperm candles, and contain not more than 22 grains of sulphur and 4 grains of ammonia per 100 cub. ft. of gas, on an average of three days, with a pressure of one inch between sunset and midnight, and six-tenths of an inch between midnight and sunset.

THE EDUCATION OF INDUSTRIAL CHEMISTS

By. PROF. GEORGE LUNGE.

THE above is the title of the Paper read by Professor Lunge at the Chemists' Congress at Chicago this year, in the course of which he said:—The vast domain of chemistry is now divided into a number of fields, worked by different men, and according to methods differing widely from each other. It has not always been so. Berzelius, Dumas, Liebig, and some of the minor stars shining at the same time as these great luminaries, combined the mastery and leadership in inorganic and organic chemistry as a pure science, with applied chemistry in all its branches. In no case, perhaps, has this widely-embracing spirit been more clearly exhibited than in that of Liebig. I will not dwell for a moment upon his immortal achievements in pure chemistry; these are, after all, the central tower of the vast building which he has reared, and they form the foremost title to his being classed as the greatest of all the chemical giants our century has produced. But hardly, if at all, inferior to this are his achievements in applied chemistry. Need I remind my hearers where Liebig found those two immensely important fields, agricultural and physiological chemistry, and where he left them? His merits with respect of industrial chemistry are perhaps less generally known and appreciated, but they are also sufficient to warrant the assertion that during the first half of this century no teacher of chemistry, except perhaps Dumas, occupied so high a place in technical matters, and was more frequently appealed to for assistance and enlightenment by chemical manufacturers than Liebig. It was probably not a mere accident that one of the very first men who occupied a chair entirely devoted to technological chemistry in its stricter sense, Friedrich Knapp, was Liebig's brother-in-law. It will not be disputed that the teachers of industrial chemistry of this day, if they looked to their spiritual ancestors of half-a-century ago, can find hardly any men of mark who were at that time mere specialists in technology, but they must and can lay claim to being the humble successors of those grand heroes of pure science of whom I have spoken at the outset, and who have combined excellence in theoretical and in applied chemistry.

It is very different to-day. Hardly one of the men whom we are now proud of revering as our leaders in pure science, is intimately connected with industrial chemistry. The last of the great men of whom that could have been said, August Wilhelm Hofmann, has passed away from us; and he had about thirty years ago ceased to be productive in that specialty. Of course, a good many other first-class theoretical chemists have some connection with industrial pursuits; some of them have even taken out patents, and devote part of their time to the "business" element of applied chemistry. But no one of them occupies himself with teaching industrial chemistry, or working, or writing in that field; and few of them have any extended knowledge or interest in that domain. Industrial chemistry in that respect is exactly on the same ground as pharmaceutical, or agricultural, or physiological chemistry. All of them have branched out too far and have become too closely intertwined with other sciences to be embraced by the same men whose life-work lies in pure chemistry; all the less as the latter have been compelled long ago to parcel up their own field among various workers. It is now quite an exception for the same man to pursue more than one of these three directions; General and physical, inorganic and analytical, and organic chemistry. Nay, the time seems near at hand when the organic chemists will be divided into fatty, aromatic, and pyridine chemists, and perhaps some further shades. It is, of course, indispensable for every chemist to be acquainted with all the branches of his profession, and for the elementary grades even the teaching of those various branches may be and generally is still left in a single hand. But the creative work is now distributed among quite a number of classes of chemists, and in the highest grades the teaching must be similarly divided among specialists. Thus at the Zurich Polytechnic School there are four full professors for the various departments of pure and applied chemistry, with four assistant professors, and a fifth chair has just been founded.

Since industrial chemistry has become an entirely distinct department of science, and since the instruction therein has naturally been entrusted to separate teachers, it is important, both to those who intend to study industrial chemistry as a profession and to those who have to employ the men educated for that pursuit, that it should be taught in the best possible manner. This is so self-evident that it sounds almost like a commonplace to speak of it, and yet it is far more difficult than it looks. Whilst the teaching of pure chemistry is carried on very much the same lines all over the world, it is certainly not a settled question how chemical technology is to be taught, and great differences of opinion exist in that respect among the leaders in that branch of science, the governing boards of technical schools, and the practical manufacturers who look for the best possible preparation of their employés.

A few years ago public discussions on the best way of educating young men for the profession of technical chemists took place very extensively, both in Germany and England. The Societies of Chemical

Industry in both countries, a number of private gentlemen, and in Prussia even the State Department of Education took part in those discussions. I myself have borne a good share in them, and whilst standing up for what both experience and common sense induced me to maintain, I have given due weight to the arguments brought forward from other sides. I have also had a good opportunity of carrying out at least a good portion of those views which I then felt bound to take in one of the most flourishing centres of technical instruction. So far as I can judge, only a faint echo of those discussions has reached the country in which I have now the honor of speaking. But it cannot be indifferent to this great nation how its young men are to be fitted out for carrying on the pursuit of technical chemistry. Indeed, metallurgy, assuredly one of the greatest American industries, is nothing but a special case of technical chemistry, and any remarks made upon the latter apply to a great extent also to the former; but my theme is too large to take notice of the special requirements for the instruction in metallurgy to-day.

I hope, therefore, to be excused if I touch briefly on the main points of these discussions on the education of technical chemists, so far as they may seem to possess interest for this country. I shall confine my remarks exclusively to the highest class of teaching, such as is practised at universities and polytechnic schools, both because time would not permit me to discuss the lower-grade schools as well, most useful though these are in their way, and because I do not possess the necessary personal experience and competence for dealing with that part of the subject.

Before entering upon the course of instruction to be followed at the colleges themselves, we must necessarily look to the foundation of that edifice; that is the previous training of the young men who are to enter a college of which technical chemistry forms one of the principal branches. I am not sufficiently acquainted with the various classes of schools existing in this country to tread upon this ground, but so many of my hearers have been in Europe, or at least know European institutions, that I may take it for granted that I shall be understood when speaking of the various systems prevailing in Europe. I shall venture even further by speaking chiefly of the German and Swiss schools, which are generally acknowledged as being among the best of their kind.

In these countries two systems of education are found side by side, and often in tacit or outspoken opposition to each other, viz., the classical or humanistic and the modern or realistic system. The former, as embodied by the German *gymnasien*, the English grammar schools, and the French *Lycées*, builds up the whole of education on the foundation of Latin and Greek, devoting but little time to modern languages, including the mother tongue, about as much to mathematics, and very little indeed to natural sciences. Youths brought up under this system have very frequently turned out splendid men in all walks of life, and many savants of the first order have sprung from such classical schools. The devotees of this system are not tired of repeating, with that dogmatic tone fostered by itself, that higher mental culture cannot be brought about by any other means. A man, they say, who knows Latin and Greek, or who at least has known something of these languages at a former period of his life, has thereby trained his mind in such a wise that it is open to receive knowledge of all kinds, whether philological, or historical, or mathematical, or belonging to the realm of natural science. But they go much further; they boldly say that nothing but this classical training enables a man to thoroughly grasp even the inductive sciences in their highest ramifications. Others may grub about in the lower regions; they may do useful work in chemical analysis, in collecting plants or beetles, or stones, and the like; but the fundamental discoveries, the grand generalisations, all the higher attainments in science are reserved for those who have drunk from the fountain of classical studies. Nor are the men who speak in this way shaken in their belief, which, with them amounts to a dogma, by the hard fact that many men of the highest order, of whom I will only mention Faraday and Liebig, do not conform to the rule of the exclusively saving power of classical education.

In this practical country such views are probably very rarely met with, and many of my hearers may think that any discussion about them is like fighting with shadows. But in Europe, at all events, they are realities. Men like Hoffmann and Dubois Reymond (of whom the second later on withdrew from that position) have pronounced in their favour, and probably the majority of German university professors still adhere to them, more or less outspokenly. Up to this moment in Germany the majority of those entering college for the purpose of devoting themselves to the study of pure science, and all those who enter for medicine, come from the classical *gymnasien*, where Latin and Greek are the central pillars of education; even for the polytechnic schools the classical *gymnasien* enjoy the same privileges as the *realschulen*, where only Latin or no classical language at all is taught, but in lieu of that far more of modern languages, of mathematics, chemistry, physics, drawing, and so forth. It will be perceived from this that in Europe it is not yet a waste of time and energy to stand up publicly for the conviction that the classical languages, so far

from being helpful in the pursuit of scientific and especially technical studies, are most decidedly *injurious* to it, both directly and indirectly, by blocking the way for other matters of far greater importance. I speak feelingly on this point, for I received a thorough Latin and Greek education, and my original intention was to devote myself to the study of the science of language. I cannot, therefore, be upbraided with talking about matters of which I know as much as a blind man of colours, when discoursing on the value of a training in the classical languages, which I have loved dearly, and in which I have worked with far more than the ordinary zeal of a collegian. But I am bound to say, as a chemist, that I have bought my whistle far too dear. It would not be becoming, if I went any further into personal matters, but thousands are in my position, and most of them will, like myself, say that, if we have done our little share in some theoretical or practical branch of natural science, it has most assuredly not been in consequence, but in spite of our classical training, which taught us to esteem words more highly than things, and book-learning as the only kind of knowledge worthy of a noble and really cultivated mind.

I have come to the conclusion that, taking men as they are, and looking at the fact that only a small minority are able to give an unlimited amount of time to their preparation for practical life, those who intend to embark in the career of natural science, in medicine, or in any technical line, ought to content themselves with only *one* classical language, that is practically with Latin, although some well-meaning enthusiasts would in this case plead for Greek. In my opinion a man may get on perfectly well in every one of the branches named before without knowing even Latin, and I make bold to say he may also acquire a mental education as deep and real as that generally approached through the classical languages; but in Europe, at all events for the present generation, a knowledge of Latin is still desirable for those who move in the higher spheres of society, whilst it is the merest sham to pretend that there exists in those circles, with trifling exceptions, more than a faint remembrance of the Greek with which they painfully struggled in their earlier years. The whole of the time given to Greek, and a good deal of that spent on Latin in the *gymnasien*, is in the *realschulen* devoted to modern languages, to mathematics, to natural science, and to drawing, which subjects, in my firm belief, are not merely more useful for all practical purposes, but which form the youthful mind in a far healthier mould than the one-sided pursuit of classical studies.

I am afraid I have, after all, dwelt too long on the chapter of preparatory education, as I am speaking in a country where the immense prestige enjoyed by the classical languages in the greater part of Europe does not exist, and where the opinions I have stood up for are taken for granted without any discussion. Let us, therefore, now enter upon our proper field, the special studies to be pursued at a university or technical college by those who mean to devote themselves to industrial chemistry.

(To be Continued.)

Trade Notes.

DUTCH MADDER.—Messrs. Bunge and Co., of Rotterdam, report that this article continues on its downward course, and another decline has occurred. There is no important movement of stocks, and the inquiry for supplies has reference only to the ordinary wants of the consuming trade. Prices are at present extremely low.

CLOSING OF STEEL WORKS AT WIGAN.—Notices were posted last week at the steel works of the Wigan Coal and Iron Company that work would not be resumed this year. It was expected that on the miners returning to the pits, the steel works would be reopened. Consequently the news has occasioned considerable surprise. The works have been closed since September 23. Their continued stoppage will entail considerable suffering amongst the steel workers, who have been idle so long.

FATAL ACCIDENT AT A GLASS WORKS.—Messrs. Wright and Co.'s glass bottle works, near Stourbridge, were the scene of a frightful accident last week. Three men named Albert Ryder, Enoch Oliver, and Charles Pearson, were in a gangway under a Siemens furnace containing at the time about 30 tons of molten glass, trying to check a slight escape of molten matter from a crack. It is customary to play on such escapes with water till they glaze and stop. While thus engaged a firebrick slab gave way, and through it poured the hot fluid. Pearson was nearest the exit, and barely escaped with his life, but not without burns. Oliver and Ryder were overwhelmed by the metal and collapsing bricks. Their death must have been swift and terrible. Two brothers named Elijah and Sylvanus Grainger were also burnt, the former severely. Another man, named Thompson, was burnt by an explosion during the afternoon. It was thought that no trace of Oliver and Ryder would have been left, but their indistinguishable remains were eventually found.

Market Reports.

TYNE CHEMICAL REPORT.

TUESDAY.

Chemicals are quiet, though rather more business doing for forward. Soda crystals £2. 5s. for export, £2 10s. locally. Bleaching powder, £7. 15s. per ton. Caustic, 70%, £9. 15s. per ton; 76/77%, £11. 10s. to £12. per ton, and very scarce.

Bleaching powder, softs, £7. 15s. per ton, nett; hards, £8. per ton, nett; caustic soda, 76/77%, £11. 10s. per ton, nett; 70%, £9. 10s. per ton, nett; recovered sulphur, 2 cwt. bags, £4. 5s. per ton, nett; soda ash, 48%, £3. 15s. per ton; 52%, £4. 2s. 6d. per ton; 56%, £4. 10s. per ton, nett; alkali, 36%, £3. per ton, nett; white alkali, 48%, £4. 10s. per ton; 50%, £4. 15s. per ton; 52%, £5. per ton, nett; hyposulphite of soda, in 5-7 cwt. casks, £7. per ton; ditto, in 1 cwt. kegs, £7. 15s. per ton, nett; silicate of soda, 75° Tw., £2. 15s. per ton, nett; 100° Tw., £3. per ton, nett; 140° Tw., £3. 17s. 6d. per ton, nett; soda crystals, in casks, £2. 10s. per ton gross weight; in 2 cwt. bags, £2. 10s. per ton nett weight; chlorate of potash, 8½d. per lb. less 6%; pearl hardening £3. per ton, nett; pure white sulphate of alumina, £4. 2s. 6d. per ton, nett; blanc fixe, £7. 10s. per ton, nett; chloride of barium, £7. 10s. per ton, nett; carbonate of alumina, £28. 15s. per ton, nett; aluminate of soda, £33. 15s. per ton, nett; in 5 ton lots, £28. 10s. per ton, nett; hydrate of barium, £10. per ton, nett.

SOUTH DURHAM SALT.—In good inquiry at 9s. 6d. per ton, f.o.b. Tees.

COALS.—There is still a strong demand for coal, and prices for the moment are stiff. Quotations:—Best Northumbrian steam, 14s. to 15s. per ton; second qualities, 13s. to 14s. per ton; small steam, 6s. 6s. to 7s. per ton; bunker coals steady, 10s. to 10s. 6d. per ton; Durham gas coals, 11s. to 12s. per ton; coke, in good demand, at 16s. per ton.

REPORT ON MANURE MATERIAL.

During the week a moderate business has been passing, and prices are well maintained. The quotations for 75/80% Florida phosphate rock remain 9d. for Mediterranean and Baltic, 8½d. for good Continental ports, and 8¼d. for U.K., in cargoes, cost, freight, and insurance. Continent is still buying, but U.K. for the most part holds off. The position of Peace River and South Carolina River rocks is unchanged. Algerian phosphates are attracting some attention, but the use of these is still rather in the experimental stage. We do not hear of any business in River Plate bones. For anything near at hand of moderate size £4. 15s. or more would have to be paid, but for cargoes for shipment the value can hardly be put above £4. 12s. 6d. Calcutta crushed bones have been selling at £4. 15s., ex ship London, for shipment, but this price has since been refused. For Kurrachee crushed bones, for shipment, £5. now asked, and this price required for East India bone meal, for shipment, ex ship Liverpool, London, or Glasgow. There is nothing on spot of either crushed bones or bone meal, and prices seem likely to go higher. Nitrate of soda is somewhat firmer in the forward position, though, on spot, ordinary quality may be had at 9s., and fine at 9s. 1½d. per cwt. Due cargoes are worth 8s. 10½d. to 9s., according to size and test, and October-November shipments 9s. 1½d. to 9s. 3d. Nothing reported in miscellaneous nitrogenous material in the absence of supplies.

MISCELLANEOUS CHEMICAL MARKET.

In the alkali trade there is brisk inquiry for all products, and it will be several weeks before the demand for bleaching powder and soda ash can be overtaken. The works stopped during the strike are now all resuming operations. Prices on the spot are firm as follows: bleaching powder £8. nett makers' works, and £8. 10s. f.o.b.; white caustic soda, 77%, f.o.b. Tyne, £12.; f.o.b. Liverpool, 74%, £11.; 70%, £10.; 60%, £9.; cream, 60%, £8. 15s., 10-ton lots and upwards. For contracts over 1894 business has been done on basis of £8 7s. 6d. per ton for 70% at makers' works. Ammonia alkali, 58%, is firm for spot delivery at £4. per ton, casks, at works, and this is about the price for contracts over 1894. Spot prices of Leblanc ash are irregular. Soda crystals and bicarbonate are in good supply, and prices are easy. For sulphate of copper the demand is fairly strong, and prices are quoted rather higher. The price of muriate of ammonia has been raised to £26. per ton for good grey. Sal ammoniac meantime unchanged. There is good inquiry and fair amount of business doing, both for prompt and forward, in vitriol and muriatic acids. Recovered sulphur remains steady at £4. 2s. 6d., makers' works. White powdered arsenic in good request for export and home trade, and price firm at £13. 5s. nett, Garston. Potash, caustic and carbonate, are selling freely at current rates. Brown acetate of lime continues firm at £7. per ton, delivered

usual points, and there is less offering; grey scarce and firm at £10. 10s per ton, c.i.f. White sugar of lead steadily maintained at £26, c.i.f. Carbolic acid crystals are without any improvement in general demand, but prices are, if anything, firmer.

TAR AND AMMONIA PRODUCTS.

The benzol market seems to have receded from its firmer position, and prices are now easier, though only to the extent of ¼d. The demand for solvent naphtha continues good, and also for crude carbolic. Anthracene is quiet, but the outlook for pitch is exceedingly good.

The sulphate of ammonia market continues to improve, and the advance has become accentuated by the difficulties of deliveries in Scotland, in consequence of the strike. For spot delivery £13. 15s. has been freely paid this week, and the same price is quoted for December and January parcels, but makers are holding for £13. 17s. 6d. to £14. The latter price will, no doubt, be reached unless some relief comes to the congested stage of both production and deliveries. Forward business has entirely ceased, so far as makers are concerned, and very few buyers seem inclined to take up parcels offered by the speculators. There will probably be a reaction before long.

THE METAL MARKET.

LONDON, WEDNESDAY.—Pig iron quiet: Scotch warrants closed at 43s. 7½d., Middlesbrough 35s. 8½d. cash, and hematite 45s. 8d. Copper, steady: Chili bars, G.O.B.'s and G.M.B.'s, closed at £43. 8s. 9d. to £43. 13s. 9d. cash, and £44 to £44. 5s. three months. Tin quiet: Straits closed at £76. 10s. to £77. cash, and £77. 7s. 6d. to £77. 17s. 6d. three months; Australian, £77.; English ingots, £81. Lead, easy: Spanish, £9 10s. to £9. 11s. 3d.; English, £9. 12s. 6d. to £9. 15s. Silesian spelter: ordinary, £17. 1s. 3d. to £17. 2s. 6d. Nickel, 1s. 7½d. Antimony, £37. 10s. Quicksilver: First hands, £6. 7s. 6d.; second hands, £6. 7s. Copper shares, quiet: Cape, 1½ to 1¾. Copiapo, 2 to 2½. Libiola, 3½ to 3¾. Mason and Barry, 1½ to 2. Rio Tinto, 15½ to 15¾. Tharsis, 4½ to 4¾.

LIVERPOOL OIL AND COLOUR MARKET.

WEDNESDAY.

OILS.—Palm is quiet, with practically no business doing. Lagos is quoted £24. 10s. Olive is much the same in tone, with a moderately good demand for consumption; Spanish offers at £33. to £34.; Messina, £34. 10s. per ton. Linseed is not so firm, and prices have slackened, Liverpool makes to-day being quietly steady at 20s. 9d. to 22s. per cwt. in export casks. Cottonseed is dull, and still easier in price, Liverpool refined being quoted 21s. 3d. to 23/- per cwt. Castor oil continues steady, with good seconds Calcutta at 2¾d., business having been done at this; first pressure French 2¾d. ex quay, and store 2½d. per lb. Tallow is steady but quiet, supplies being scarce. Resin is in fairly good demand, all round common ruling 3s. 9d. to 3s. 10½d. per cwt. Spirits of turpentine are in better request at the reduction, sellers being firm now at 22s. per cwt. Petroleum is unaltered in price and position.

COLOURS are steady without alteration in prices. Ochres: Oxfordshire, common, £10., medium, £12., best, £15.; Derbyshire, common, 40s.; medium, 50s., best, 60s.; Welsh, best, 70s., seconds, 50s., and common, 18s.; Irish, Devonshire, 40s. to 45s.; French, J.C., 55s. to 60s.; M.C., 65s. to 67s. 6d. Umber: Turkish quiet; Devonshire, 50s. to 55s. White lead, red lead, and oxide of zinc unchanged. Venetian red, £6. 10s. to £10. Cobalt: Prepared oxide, 9s. 9d.; black, 9s.; blue, 6s. Zaffres: No. 1, 3s. 6d.; No. 2, 2s. 6d. Oxide of iron: Common, £6.; medium, £10.; finest, £20. Zinc oxide, £23. to £25.

THE COPPER MARKET.

Messrs. Harrington and Co., in their fortnightly report, dated Liverpool, December 1st, 1893, state: The Chili charters for the past fortnight are cable as 600 tons, which, with 800 tons estimated for the previous fortnight, makes a total of 1,400 tons for the month, thus making the total since 31st December last 18,950 tons, against 19,950 tons same time last year. Exchange 13¾d.

During the past fortnight the market for G.O.B.'s and G.M.B.'s has been active, and transactions amounted to 10,000 tons, values fluctuating between £42. 3s. 9d. and £43. 7s. 6d. cash, and £43. 13s. 9d. to £43. 17s. 6d. three months, closing steady to-day at 1s. 3d. less for both positions. The quotation for copper in America is 10½ to 10½ cents per lb.

The Cape Copper Company have declared a dividend of 1s. 3d. per share on the cumulative preference and ordinary shares of £2. each, free of income tax, payable on 1st January next.

The total stocks in Liverpool, Swansea, London, and Havre are 43,577 tons, against 44,291 tons on the 15th ult., showing a decrease of 714 tons for the fortnight. The figures for the previous fortnight showed an increase of 301 tons, thus making a decrease for the month of 413 tons. The stocks include about 3,300 tons of copper sold, but not yet delivered to smelters. The visible supply for the fortnight is 46,685 tons, against 48,188 tons on the 15th November, showing a decrease of 1,503 tons. The month's figures show a decrease of 1,316 tons. The stock of English G.M.B.'s in Liverpool remains at 4 tons. Refined and manufactured sorts are dull. Quotations being: Tough cake, £45. 15s. to £46. 5d.; best select, £46. 5d. to £46. 15s.; Indian sheets, £50. 10s. to £51.; strong sheets, £53. 10s. to £54.; and yellow metal sheets, 4½d. per lb.

The sales of furnace material comprise—At Liverpool: 170 tons Chili ore, ex "Orellana," at 7s. 3d.; and 240 tons Mexican ore, at 7s. 9d. per unit; 166 tons Argenteriferous Peruvian matte, and 66 tons Argenteriferous Chili regulus, on private terms. At Swansea: *nil*.

HULL PAINT, OIL, AND COLOUR REPORT.

TUESDAY.

OILS.—Business generally is not equal to the same time a year ago, still in some departments there is a fair increase and good prospects as evidenced by some firms continuing buying new steamers. The shipments of coal are very disappointing to many of the exporters, but perhaps it is somewhat premature to expect the re-establishing immediately of all the continental trade. Imports generally are well maintained, tallow being 946 cwt. against 365 cwt. a year ago. Linseed oil, after advancing to 19s. 9d. naked spot, closes easier, with sellers at 19s. 7½d.; month, worth 19s. 3d.; Jan.-April, 19s. to 19s. 1½d.; and May-August, 19s. 4½d. Casks 17s. 6d. and ordinary barrels 22s. 6d. per ton extra, and for boiled or refined ditto from £1. to £2 per ton extra. Export for the week being only 629 cwt. against 2,536 cwt. a year ago. Cotton oil: Refined for November closed at 19s. 6d., but for delivery for the next day or two 19s. 3d. is asked; Dec.-April, worth 18s. 6d. Export during the week being most unsatisfactory, 3,380 cwt. against 10,896 cwt. Refined rape oil more inquired for. First pressure castor oil, 2½ per lb. Coast cod oil very little in supply, and little in demand, £17. to £19. per ton. Herring oil, £16. Sod oil, £15. to £17. per ton. Resin oil crude, £7 per ton. Anti-friction greases from £6. per ton. Engine and cylinder oils from 1s. to 2s. per gallon.

CAKES.—Linseed cakes: The demand is quiet, pending the return of cold weather. Prices steady, 95%, pure, £8. 15s.; ordinary, £7. 5s. to £7. 10s. Russians, £8. 10s. Polish, £8. 15s. Cotton cakes continue in good demand, and are not too plentiful, best makes, spot, £5. 7s. 6d. to £5. 10s.; Jan.-April, £5. Rape cakes: East India, £4. 15s.; Black Sea, £4. 5s.

PAINTS.—The trade continues poor, some firms continuing to keep their hands upon short time, initiated during the strike. The exports show a falling off, both in painters' colours and chemicals, the total of colours being 433 packages against 1,364 packages a year ago, and of chemicals 1,313 packages against 4,026. Prices remain altogether unchanged.

WEST OF SCOTLAND CHEMICALS.

GLASGOW, TUESDAY.

The coal dispute here is still unsettled, and there has been great hindrance to industrial operations generally, but falling short of wholesale closing. Blast furnaces are largely damped down, and the oil works are partly stopped. The strike is really an affair of the leaders only, and many of the men have refused to stop work, so that coal output, though restricted, is not extinguished. One chemical factory (closed) has been considering an offer of coal supplies from Holland. Mineral oil and paraffins have been called for enormously since the disturbance arose, and deliveries have been on a scale never before attained. If the strike continues, and especially if the leaders manage to coerce the men all along the line, a delivery of this volume will speedily outstrip production. Prices are not affected so far as makers are concerned, these heavy calls being all ex-contracts.

Sulphate of ammonia has been done up to £13. 15s., but the market, owing to the uncertainty caused by the strike and the daily rumour of settlement, is knocked quite out of time, and buyers and sellers both would rather wait—those who can.

General chemicals are, if anything, easier, but there is hardly any change of price.

Chief prices current are:—Soda crystals £2. 10s. nett, Tyne; soda ash £3. 17s. 6d. nett, Tyne; white alkali 48/52 £4. 10s. to £5. nett, Tyne; alum in lump £5. nett, Glasgow; caustic soda, white, 74° £11. 10s., 70/72° £10. 15s., 60/62° £9. 15s., and cream 60/62° £9. 10s., all nett, Liverpool; bleaching powder £8. nett, Tyne; salicake, 22s. 6d.; borax, English refined, £30., and boracic acid,

£37. 10s. nett, Glasgow; bicarbonate of soda, 5-cwt. casks, £6. and 1 cwt. casks £7. nett, Liverpool; bichromate of potash 4½d. nett, for Scotch and English deliveries (for export, 4½d. f.o.b. Glasgow); bichromate of soda, 3¼d. nett, for Scotch and English deliveries (for export, 3½d. nett, f.o.b. Glasgow); chlorate of potash 8¼d. less 5%, Liverpool; nitrate of soda, 9s. 4½d.; sulphate of ammonia, £13. 15s. prompt, f.o.b. Leith; sal ammoniac, first second white, £37. and £35. less 2½% any port; sulphate of copper £15. 15s. less 5% Liverpool; paraffin scale, hard and soft, 1½d. per gallon; paraffin wax 120° semi-refined 2½d.; paraffin spirit (naphtha) per gallon; paraffin oil, burning, standard No. 1 grade, 5d. to 6d. at works, for Scotch buyers (English sales ½d. to ¾d. less ditto (lubricating) 865° £4. 7s. 6d. to £4. 10s., 885° £4. to £5. and 890/895° £5. to £6. Week's imports of raw sugar at Glasgow were 11,500 bags.

New Companies.

James Davis and Sons, Limited. CAPITAL £20,000, in shares of £5 each. This company has been formed to acquire the business of dyers now carried on at Greetland, Halifax, and to trade as dyers. The subscribers to the Memorandum of Association are:—C. I. Greetland, dyer; J. H. G. Davis, Greetland, dyer; A. Davis, field, Greetland, widow; E. Davis, Greetland, married woman; Davis, West Vale, Halifax, married woman; K. Davis, Greetland, spinster; E. Townsend, Wakefield, married woman.

Smokeless Heat and Light Syndicate, Limited. CAPITAL £20,000, in shares of £5 each. This company has been formed to acquire letters patent for the working and development of the inventions in which this company is interested. The subscribers to the Memorandum of Association are:—A. Rogers, 38, Clanricarde Gardens, London, S.W., late I.C.C.; M. Bradford, 35, Queen Victoria Street, London, E.C., solicitor; T. Preece, West Ham, Essex, accountant; A. E. Edwards, 35, Southampton Buildings, London, S.W., and W. Williams, 52, Lamb's Conduit Street, London, clerk; A. R. 1, Victoria Street, London, S.W., solicitor; F. J. B. Doyle, 91, Gifford Street, London, W.C., gent.

W. B. Wilkinson and Co., Limited. CAPITAL £20,000, in shares of £10 each. This company has been formed to acquire the business formerly carried on at Newcastle-on-Tyne and in London, by W. B. Wilkinson and Co., and to trade as manufacturers of cement, concrete, tile, and artificial stone. The subscribers to the Memorandum of Association are:—P. Hobbs, 1, Otterburn Villas, Jesmond, Newcastle-on-Tyne, manager; J. H. Armstrong, 32, Eldon Street, Newcastle-on-Tyne, accountant; F. G. Armstrong, Chester-le-Street, gent.; S. Hobbs, 6, Pump Court, London, E.C., manager; R. Pybus, Moseley Street, Newcastle-on-Tyne, solicitor; M. Read, 107, Northumberland Street, Newcastle-on-Tyne, architect; J. Nevin, 13, Hill Grove, Heaton, Newcastle-on-Tyne, cashier.

The Patent List.

This list is compiled from Official sources in the Manchester Technical Laboratory, under the immediate supervision of George E. Davis and Alfred R. Davis, who report professionally upon the value of Chemical Patents.

APPLICATIONS FOR ENGLISH LETTERS PATENT

Manufacture of Candles. C. Bollé. 22,159. November 20.
Apparatus for Drying and Removing Solvents from Bones, etc. Wickens. 22,175. November 20.
Cleansing Rhea Fibre. W. Johnstone and J. B. Doy. 22,183. November 20.
Producing Aluminium. J. Soler. 22,190. November 20.
Method and Apparatus for Carburetted Gas. F. W. Clark. 22,196. November 20.
Manufacture of Candles. H. Palmer and A. Ware. 22,196. November 20.
Separating and Purifying Colouring Matters from Crude Cotton Oil. E. S. Wilson, E. Stewart, and K. Hunt. 22,225. November 20.
Manufacture of Cement Mortar. M. Williams. 22,227. November 20.
Improved Apparatus for Concentrating Sulphuric Acids and Liquids. J. Bradbury. 22,327. November 22.
Improvements in Machines for the Manufacture of Candles. E. J. 22,328. November 22.
Precipitating Gold and other Metals from Cyanide and other Solutions. E. Andreoli. 22,380. November 22.
Manufacture of Incandescent Bodies for Incandescent Gas Lamps. R. Langhans. 22,396. November 22.
Smoke Consumption. T. Gibson. 22,428. November 23.
Manufacture of Coal Gas by the Use of Oxygen and Hydrocarbon. F. Fanta. 22,402. November 23.
Manufacture of Glucose from Cottonseed Fibre and the Conversion of Fibre on Cotton-covered Seed. G. Leslie. 22,495. November 23.
Apparatus for Impregnating Lime with Chlorine to form Bleaching Powder. A. Campbell, A. Walker, and J. W. Walker. 22,532. November 23.

Artificial Manure from Urine, etc. A. MacArthur. 22,536
 Manure from Sewage Sludge. J. Carter. 22,539, November 24.
 us for Washing and Purifying Gas. F. D. Marshall. 22,576.
 Cylinder for Storing Compressed Gas. E. A. Heywood. 22,614
 for the Manufacture of Hollow Candles. E. de Pass. 22,638.

Gazette Notices.

Adjudications.

BARRACLOUGH, HENRY ROBINSON, trading as Barraclough & Co., Bradford and
 Toftshaw near Dudley Hill, Yorks, bone crusher.
 KEMP, HUGH, Russell Town St. George, Glos, oil and colour dealer.

IMPORTS OF CHEMICAL PRODUCTS

AT

THE PRINCIPAL PORTS OF THE UNITED KINGDOM.

LONDON.

ending November 25th.

Acid—
 105 pkgs. A. & M. Zimmermann
 10 J. Owen
 440 c. Annati & Harrison
 102 P. Hecker & Co.
 12 pkgs. Ohlenschlager
 50 A. B. Curtis & Co.
Ammonia (Liquid)—
 3 pkgs. H. Lorenz
Argols
 2 t. Major & Field
 17 H. Bath & Son
 and 13 De Sissa, Sons, & Co.
Asphaltes
 356 Mory & Co.
 30 Philipps & Graves
Chlorate—
 24 pkgs. Petri Brs
Chloride—
 3 cks. S. Ward & Co.
 37 D. Storer & Sons
 109 W. Harrison & Co.
 24 O'Hara & Hoar
 13 Leach & Co.
 13 D. Storer & Sons
 19 J. L. Lyon & Co.
 117 W. Harrison & Co.
Acid—
 26 pkgs. Beresford & Co.
Chloride—
 3 c. L. & I. D. Jt. Co.
 156
 30
 42
 15
 702
Acid Gas—
 200 pkgs. Leitz & Co.
 29 Volcanic Eruption Co.
 60 Philipps & Graves
Oil—
 20 c. R. Morrison & Co.
 10 Beresford & Co.
 16 J. T. Morton
 56 brs. Anderson, Weber
 & Smith
 1 Sawyer, Sons, & Oakley
Potash—
 28 drs. Spies Brs. & Co.
 6 Petri Brs.
 30 c. Beresford & Co.
Soda—
 150 c. Beresford & Co.
Is (otherwise undescr ibed)
 48 pkgs. T. H. Lee
 8 A. & M. Zimmermann
 15 W. J. Crook
 21 Craven & Co.
 8 Philipps & Graves
 7 Hernu, Peron & Co.
 15 Beresford & Co.
Tartar—
 8 pkgs. W. Isted
 11 Fellows, Morton, & Co.
 14 Howards & Sons
 14 B. & F. Wf. Co., Ltd.
 5

France, 36 B. & N. Wf. Co., Ltd.
 " 8 Ross & Deering
 " 5 C. Christophersen
 " 6 R. Warner & Co., Ltd.
 " 2 Maconochie Brs
Dextrine—
 Germany, 100 pkgs. Hernu, Peron, & Co.
 " 160 Vokins & Co.
 " 160 J. Barber & Co.
 " 105 M. D. Co.
 " 50 Prop. Chmbln's Wf
Dyestuffs—
Aniline
 Germany, 3 pkgs. Sharland & Co.
Annatto
 Adelaide, 2 pkgs. Laughland, Mackay, & Co
Anthracene
 Holland, 221 pkgs. Burt, Boulton, & Co.
Argols
 Italy, 511 pkgs. Thames S. T. & L. Co., Ltd.
Cochineal
 Canaries, 2 pkgs. Johnson, Hicks, & Co.
Cutch
 E. Indies, 300 pkgs. R. G. Hall & Co.
 France, 100 R. Simpson
 U. States, 250 Ralli Brs
Extracts
 France, 535 pkgs. Boutcher, Mortimore, & Co.
 Austria, 337 A. J. Humphrey
 U. States, 2 E. Lecomte
 Belgium, 109 T. H. Lee
 Italy, 5 J. Flack
 Holland, 1 Loder, Son, & Co.
Fustic
 Jamaica, 42 t. S. Dobree & Sons
Gambier
 E. Indies, 826 pkgs. Baxter & Hoare
 " 460 Beresford & Co.
 U. States, 498 W. Schutte
 " 444 F. Boustead & Co.
 E. Indies, 223 Sollas & Sons
 " 1,328 Adamson, Gillfillan, & Co.
 " 249 L. & I. D. Jt. Co.
Indigo
 E. Indies, 41 chts. L. & I. D. Jt. Co.
 " 41 Arbutnot, Latham, & Co.
 " 50 Eales & Rutherford
 " 4 Ripley, Roberts, & Co.
 U. States, 8 G. N. Rly Co.
 E. Indies, 7 Lewis & Peat
 " 84 P. Macfadyen, & Co.
 " 42 Parry & Co.
 " 13 Croysdale & Co.
 " 15 F. Huth & Co.
 " 10 G. S. N. Co.
Logwood
 Jamaica, 30 t. Park, Macfadyen, & Co.
 " 14 S. Dobree & Sons
Myrabolams
 E. Indies, 998 pkgs. W. France & Co., Ltd.
 " 1,490 J. Graves
 " 667 J. P. Alpe & Co.
Orchella
 Portugal, 98 pkgs. Prop. Bull Wf.
 " 431 N. Smith
Saffron
 Spain, 1 pkge. P. W. Hore & Co.
Shumac
 Italy, 300 pkgs. C. S. Lovell
 " 1,300 J. Kitchin, Ltd.
 " 80 Union L. Co., Ltd.

Tanner's Bark
 Germany, 2 t. Prop. Chmbln's Wf.
Valonia
 A. Turkey, 50 t. Anning & Cobb
 " 26 W. H. Mitchell
 " 70 A. & W. Nestitt
 " 2 M. D. Co.
 " 28 Marshall & French
Dyestuffs (otherwise undescr ibed)
 France, 1 pkge. Hernu, Peron, & Co.
Farina—
 Germany, 50 pkgs. P. Windmuller & Co.
 " 150 Seaward Brs.
 " 100 J. Knill & Co.
 Holland, 50 Hicks, Nash, & Co.
 Germany, 50 Pronk, Davis, & Co.
 " 100 Prop. Scott's Wf.
 France, 1 Hernu, Peron, & Co.
 " 50 M. D. Co.
Glucose—
 Germany, 25 pkgs. 202 c. Pillow, Jones, & Co.
 U. States, 500 500 c. L. Sutro & Co.
 " 500 500 Ohlenschlager Brs.
 " 150 151 Devitt & Hett
 " 2,250 2,250 Barrett, Tagant, & Co.
 " 750 750 P. Windmuller, Mack & Co.
 " 100 600 Pillow, Jones, & Co.
 Germany, 16 124 J. Knill & Co.
 " 100 100 J. Barber & Co.
 " 30 240 L. Sutro & Co.
 U. States, 50 282 Prop. Chmbln's Wf.
 " 250 250 J. Barber & Co.
 " 70 110 Beck & Pollitzer
 " 80 490 Page, Son, & East
 " 150 357 Prop. Scott's Wf.
 " 1,000 1,753 R. G. Hall & Co.
Iodine—
 Germany, 78 pkgs. A. & M. Zimmermann
Lead Acetate—
 France, 10 pkgs. F. Smith
Manganese—
 Japan, 175 t. J. Swire & Sons
Manure—
 Germany, 49 t. F. W. Berk & Co., Ltd.
Methyl Alcohol—
 Germany, 14 dms. Lister & Biggs
Mica—
 E. I. 4315 W. M. Smith & Sons
Ochre—
 U. States, 32 brs. Page, Son & East
 Holland, 6 c. 13 pkgs. Philipps & Graves
Paraffin Wax—
 U. States, 2,280 pkgs. 2,000 brs. J. H. Usnar & Co.
Phosphate Rock—
 Belgium, 135 t. D. de Pass & Co.
Plumbago—
 Cochín, 167 cks. Parry & Co.
 Ceylon, 221 brs. Prop. Sun. Wf.
Potash—
 Canada, 141 c. Charles & Fox
Potassium Carbonate—
 France, 105 c. Carey & Sons
 " 13 Beresford & Co.
 Germany, 19 cks. F. Boehm
 " 100 Spies Brs. & Co.
 France, 190 J. A. Reid

Potassium Chloride—
 France, 22 pkgs. Carey & Sons
 Guernsey, 206 F. Cheesewright
Potassium Sulphate—
 Germany, 500 pkgs. A. Hunter & Co.
 " 508 Co-op. L. Assn. Ld
Pumice Stone—
 Italy, 3 t. O'Hara & Hoar
 " 6 W. I. Davies & Sons
 " 2 Beck & Pollitzer
Saltpetre—
 Germany, 11 cks. Brown & Elmslie
 " 4 Petri Brs
 E. Indies, 70 T. Merry & Son
 " 155 bgs. Lucas & Spence's Wf.
 Germany, 20 kgs. Bais Brs & Co.
 " 113 P. Hecker & Co.
Sodium Acetate—
 France, 15 pkgs. H. Lorenz
Starch—
 Belgium, 46 pkgs. Barrett, Tagant, & Co.
 " 120 Leach & Co.
 " 40 W. Balchin
 " 130 A. B. Curtis & Co.
 Germany, 91 J. Barber & Co.
 Austria, 440 Horne & Co.
 " 50 J. Barber & Co.
Stearine—
 Holland, 62 bgs. Robinson, Roberts & Co.
 New Zealand, 7 cks. E. Davis & Co.
 Belgium, 14 127 bgs. H. Hill & Sons
 France, 80 Walbaum & Co.
Sulphur—
 Italy, 200 t. W. C. Bacon & Co.
Tannic Acid—
 N. Russia, 4 pkgs. M. D. Co.
Tartaric Acid—
 Holland, 53 pkgs. B. & F. Wf. Co., Ltd.
Ultramarine—
 Germany, 4 cks. J. Barber & Co.
 Holland, 5 Hernu, Peron & Co.
 " 6 Haefner, Hilpert, & Co.
 " 2 cks. G. Rahn & Co.
Varnish—
 France, 16 pkgs. Flagecollet & Co.
 Belgium, 5 Stobbs, Wilson, & Co.
White Lead—
 Holland, 4 cks. G. Rahn & Co.
 " 33 A. & M. Zimmermann
 " 12 Hernu, Peron & Co.
 France, 19 Burrell & Co.
 Germany, 10 W. Taylor
 " 129 pkgs. Burrell & Co.
 " 11 Petri Brs.
 " 44 M. Ashby, Ltd.
 Holland, 45 Magee, Taylor, & Co.
 " 36 Elkan & Co.
Zinc Oxide—
 Germany, 122 brs. M. Ashby, Ltd.
 Holland, 75
 Germany, 50 cks. F. Pryor
Zinc White—
 Germany, 30 pkgs. N. J. Fenner & Co.
 " 50 Colthurst & Harding
LIVERPOOL.
 Week ending November 23rd.
Acetic Acid—
 Rotterdam, 5 cbs.
Acids—
 In transit, qty. Cunard S.S. Co., Ltd.

Ammonia (Liquid) — Antwerp, 6 cks.	
Aniline Colours — Rotterdam, 1 ck.	
Antimony — Antofagasta, 369 bgs. " 160 Brownells & Co. " 264 A. Gibbs & Sons	
Barytes — Antwerp, 26 cks.	
Bone Meal — Rangoon, 475 bgs.	
Boracite — Panderma, 100 t. Roberts & Evans " 530 "	
Borate of Lime — Havre, 100 cks. Cunard S.S. Co., " 1678 bgs. Ld.	
Castor Oil — Antwerp, 6 brls. J. T. Fletcher " & Co.	
Chemicals (otherwise undescribed) Rotterdam, 15 cks.	
Colours — Hamburg, 5 cks. Antwerp, 24 J. T. Fletcher " & Co.	
Rotterdam, 28 9 cs.	
Cottonseed Oil — New York, 20 brls.	
Cream of Tartar — Rotterdam, 30 cks. Tarragona, 2	
Dried Blood — Campana, 8 bgs.	
Dyestuffs — Cochineal Las Palmas, 15 bgs. Widow Duranty " & Son	
Gr. Canary, 14 Burrell & Co.	
Cutch Rangoon, 400 bxs.	
Extracts Bordeaux, 150 cks. Halifax, N.S., 120 Butcher, Bacon & " Co.	
Madder Rotterdam, 1 cs.	
Orchella Lisbon, 112 bls.	
Saffron Valencia, 7 cs.	
Shumac Bordeaux, 100 bls.	
Valonia Smyrna, 985 bgs.	
Farina — Hamburg, 210 bgs.	
Glucose — New York, 550 brls.	
Iodine — Pisagua, 17 bgs. A. Gibbs & Co.	
Lead Acetate — Hamburg, 19 cks.	
Naphthol — Hamburg, 18 cks.	
Nitrate — Pisagua, 4085 bgs. Iquique, 1510 Hainsworth, " Watson & Co.	
Paint — Boston, 12 brls. G. H. Chuten	
Paraffin Scale — Rangoon, 1155 bxs.	
Phosphate — Montreal, 247 t. Phosphate Lime " Co	
Potash — Hamburg, 64 cks. Antwerp, 4 dms. Montreal, 30 brls.	
Potash Salts — Hamburg, 8621 bgs.	
Potassium Chloride — Hamburg, 1500 bgs.	
Potassium Prussiate — Rotterdam, 3 cks.	
Potassium Sulphate — Hamburg, 1500 bgs.	
Pyrites — Huelva, 1482 t. Matheson & Co. " 1383 Tennants & Co. " 1990	
Rosin — Bordeaux, 58 cks.	
Saltpetre — Hamburg, 60 kgs. 35 brls. Calcutta, 696 bgs. Ralli Bros.	

Soapstone — Bordeaux, 400 bgs. 8 cs. " 10 bls. G. G. Blackwell.	
Soda — Rotterdam, 3 cks.	
Sodium Acetate — Antwerp, 8 cks.	
Starch — Antwerp, 160 cs. J. T. Fletcher " & Co.	
Hamburg, 332	
Rotterdam, 45	
Stearine — Antwerp, 26 bgs.	
Tallow — New York, 100 tcs. Boston, 12 brls.	
Tartar — Bordeaux, 18 cks.	
Tartar Salts — Rotterdam, 2 cks.	
Tartaric Acid — Rotterdam, 7 cks.	
Tin Ashes — Rotterdam, 1 ck.	
Tin Perchloride — Antwerp, 2 cks. J. T. Fletcher " & Co.	
Ultramarine — Hamburg, 4 cks. Rotterdam, 25 cs. 1	
Waste Salt — Hamburg, 580 t. 1,016 bgs.	
White Lead — Antwerp, 7 cks. Rotterdam, 20	
Zinc Oxide — Antwerp, 108 brls. 25 cks.	
Zinc Skimmings — Montreal, 12 brls. W. Blythe & Co.	

HULL.

Week ending November 25th.

Acetic Acid — Rotterdam, 21 blns. G. Lawson & " Sons	
" 20 btl. W. & C. L. " Ringrose	
Acid — Rotterdam, 16 cks. W. & C. L. " Ringrose	
Albumen — St. Petersburg, 46 cs. Wilson, Sons, " & Co., Ltd.	
Alum — Rotterdam, 37 cks. W. & C. L. " Ringrose	
Alum Earth — Hamburg, 1 ck.	
Barytes — Antwerp, 88 cks. Bailey & " Leatham	
Bremen, 63	
Ghent, 3 bgs. Wilson, Sons, " & Co., Ltd.	
Rotterdam, 10 Blundell, Spence, " & Co.	
Chemicals (otherwise undescribed) Bremen, 4 cs. Veltmann & Co. " 5 kgs. Storry, " Smithson & Co. Rotterdam, 5 cks. W. & C. L. " Ringrose	
Colours — Rouen, 3 cks.	
Rotterdam, 5 21 pks. G. Lawson & " Sons	
" 1 cs. 7 Hutchinson & " Son	
" 19 4 36 W. & C. L. " Ringrose	
Flushing, 35 G. Lawson & " Sons	
" 1 Brach & " Rothenstein	
Antwerp, 8 Bailey & " Leatham	
Bremen, 4 2 Veltmann & Co. " 2 Hanger, Watson, " & Harris	
" 8 Furley & Co. " 1 kg. W. & C. L. " Ringrose	
Flushing, 1 9 Hutchinson & " Son	
Rotterdam, 2 Gibson Bros.	

Cottonseed Oil — New York, 500 brls. Wilson, Sons, " & Co., Ltd.	
Cream of Tartar — Rotterdam, 2 cks. W. & C. L. " Ringrose	
Dextrine — Stettin, 5 bgs. 155 pks. Wilson, Sons, " & Co., Ltd.	
Dyestuffs — Allzarine Rotterdam, 43 pks. G. Lawson & " Sons	
" 126 cks. W. & C. L. " Ringrose	
Extracts New York, 200 brls.	
Madder Rotterdam, 3 cks. Hutchinson & " Son	
" 3 W. & C. L. " Ringrose	
Farina — Stettin, 710 bgs. Wilson, Sons, " & Co., Ltd.	
Harlingen, 1,110	
Ghent, 112 cs. "	
Glucose — New York, 150 brls. Wilson, Sons, " & Co., Ltd.	
Rotterdam, 500 Hutchinson & " Son	
" 60 bgs.	
Kainit — Hamburg, 1,500 bgs. W. R. Johnson " & Son	
Lime — New York, 288 bgs. Wilson, Sons, " & Co., Ltd.	
Manganese — Rotterdam, 30 cks. Furley & Co.	
Ochre — Rouen, 27 cks.	
Phosphate — Ghent, 100 t. 710 bgs. Wilson, Sons, " & Co., Ltd.	
Pitch — Antwerp, 21 cks. J. M. Hamilton " & Co.	
Potash — Antwerp, 50 cks. Bailey " & Leatham	
Potassium Sulphate — Hamburg, 500 bgs. W. R. Johnson " & Son	
Rosin — Antwerp, 1 ck. J. & T. Seddon	
Saltpetre — Hamburg, 4 cks. Rotterdam, 135 bgs. Wilson, Sons, " & Co., Ltd.	
Silica — Christiania, 3 cs. Wilson, Sons, " & Co., Ltd.	
Soda — Rotterdam, 8 cks. Hutchinson " & Son	
Starch — Bremen, 189 cs. Veltmann & Co.	
Stearine — Antwerp, 125 bgs. M. Needler	
Tallow — New York, 167 brls. 20 hbds. 371 tcs. Wilson, Sons, & Co., Ltd. " 100 tcs.	
St. Petersburg, 40 cks.	
Tartaric Acid — Rotterdam, 4 cks. W. & C. L. " Ringrose	
Ultramarine — Rotterdam, 6 cks. Hutchinson & " Son	
Varnish — Antwerp, 1 ck. J. & T. Seddon New York, 50 brls. Wilson, Sons, " & Co., Ltd.	
White Lead — Rotterdam, 76 cks. Hutchinson & " Son	
Antwerp, 48 Bailey & Leatham " 9	
Zinc Oxide — Rotterdam, 63 cks. Hutchinson & " Son	
" 25 cks. Sissons Bros. " & Co.	

GLASGOW

Week ending November 9

Acetic Acid — Rotterdam, 3 cks. J. J.	
Albumen — Antwerp, 20 cs.	
Arachide Oil — Rotterdam, 5 cks. J. Ra	
Barium Sulphate — Antwerp, 200 bgs. 48 cks.	
Barytes — Rotterdam, 131 cks.	
Colours — Rotterdam, 4 cks. 10 cs. J. J.	
" 7 pkgs.	
Dextrine — Stettin, 95 bgs.	
Dyestuffs — Allzarine Rotterdam, 74 cks. J. Ra	
" 45 pkgs.	
Extracts Antwerp, 5 cks.	
Farina — Stettin, 950 bgs. Delfshyl, 600	
Lead Acetate — Rotterdam, 34 cks. J. Ra	
Liquid Potash — Antwerp, 21 dms.	
Paint — New York, 5 bxs.	
Phosphates — Ghent, 600 bgs.	
Potash — Rotterdam, 34 cks. J. J.	
Potassium Cyanide — Antwerp, 135 cs.	
Pyrites — Huelva, 3,076 t. Thani	
Rosin — New York, 1,500 brls. Savannah, 1,371 L. & J. M.	
Soap — Fiume, 35 cs. W. Bu	
" 135 Buchanan	
Sodium Acetate — Rouen, 15 cks.	
Starch — Fiume, 40 bgs. W. Sti	
" 102	
Antwerp, 200 cs.	
Stearine — Rotterdam, 13 cks. J. Ra	
Sulphur — Fiume, 500 bgs. T. I	
Tallow — New York, 10 tcs. J. O	
Turpentine — Savannah, 1,459 brls. 1	
Ultramarine — Antwerp, 5 cs.	
Varnish — New York, 12 brls. 1 b.	
Waste Salt — Hamburg, 191 cks.	
Wood Spirit — Hamburg, 8 dms.	

TYNE.

Week ending November 23

Barytes — Rotterdam, 68 cks. Tyne S.	
Colours — Rotterdam, 1 ck. Tyne S.	
Glucose — New York, 300 brls.	
Phosphate — Fernandina (S.C.), 2,442 t. Lat " Chmcl. Manu	
Antwerp, 3,500 bgs.	

Pyrites —	
Huelva, 1,844 t.	
Hatch —	
Rotterdam, 128 cs.	Tyne S. S. Co.
Stearine —	
New York, 24 bhd.	
Tallow —	
New York, 190 pkgs.	
Ultramarine —	
Rotterdam, 4 cks.	Tyne S. S. Co.

GOOLE.	
<i>Week ending November 22nd.</i>	
Antimony —	
Boulogne, 2 cks.	
Dyestuffs —	
Alizarine	
Rotterdam, 82 pkgs.	
Madder	
Rotterdam, 1 ck.	
Dyestuffs (otherwise undescribed)	
Boulogne, 17 cks. 25 cs.	
Farina —	
Hamburg, 1,500 bgs.	

Delfsryhl, 830 bgs.	
Glucose —	
Dunkirk, 100 bgs.	
Potash —	
Calais, 16 dms.	
Saltpetre —	
Hamburg, 12 kgs.	
Size —	
Antwerp, 8 cks.	
Waste Salt —	
Hamburg, 582 cks. 800 bgs. 421 t.	
Zinc Oxide —	
Antwerp, 20 brls.	

GRIMSBY.	
<i>Week ending November 25th.</i>	
Chemicals (otherwise undescribed)	
Hamburg, 21 cks.	
Antwerp, 5	
Farina —	
Hamburg, 110 bgs.	
Kalnit —	
Hamburg, 300 bgs.	
Size —	
Rotterdam, 3 cks.	
Hamburg, 20 pkgs.	

EXPORTS OF CHEMICAL PRODUCTS

OF

THE PRINCIPAL PORTS OF THE UNITED KINGDOM.

LONDON.

Week ending November 29th.

Acetic Acid —	
Lisbon, 13 c.	£23
Sydney, 5 cs.	12
Acids —	
Cape Town, 15 cs.	£10
Toronto, 5 pkgs.	17
Alkali —	
Ghent, 10 t.	£50
Sydney, 25 16 c.	147
Alum —	
Samarang, 12 t.	£71
Mauritius, 5 cks.	6
Salonica, 10	57
Pernambuco, 1 2 c.	7
Cape Town, 1 16	12
Alum Cake —	
Melbourne, 5 t.	£15
Ammonia (Liquid) —	
M. Video, 25 cs.	£50
Iquique, 3	35
B. Ayres, 50 dms.	36
Ammonium Carbonate —	
Sydney, 4 cs.	£6
Mauritius, 5	20
Berbice, 3 c.	7
Stettin, 1 t. 2	31
Santos, 6	65
Stockholm, 60 kgs.	81
B. Ayres, 1	28
Ammonium Chloride —	
Salonica, 2 t. 6 c.	£73
Constantinople, 2 10	85
Galatz, 9	15
Gothenburg, 1	38
Antwerp, 1 3 cks.	22
Hamburg, 1 2	40
Ammonium Nitrate —	
Algoa Bay, 23 rns.	£221
Ammonium Sulphate —	
Rotterdam, 30 t.	£390
Berbice, 40	540
Bordeaux, 12	156
Valencia, 2	30
Martinique, 25	340
Jersey, 1 1 c.	16
Hamburg, 121	1,573
Cologne, 5	90
Sourabaya, 200	2,600
Arsenic —	
Amsterdam, 18 brls.	£47
Wellington, 1 t. 15 c.	30
Benzole Acid —	
Philadelphia, 1 cs.	£9
Bisulphite of Lime —	
Calcutta, 2 t. 16 c.	£43
Bleaching Powder —	
Teneriffe, 15 c.	£8
Boracic Acid —	
Sydney, 15 c.	£29
Melbourne, 6 t.	236
Durban, 6	10
Borax —	
Algoa Bay, 2 cs.	£8
Melbourne, 5 t. 5 c.	273
Veile, 1 3	52
B. Ayres, 8 cks.	63
Mollendo, 2 cs.	7
Hamburg, 6	44
Calcium Chloride —	
B. Ayres, 42 dms.	£35
Carbolic Acid —	
Sydney, 9 c.	£11
Paris, 10 cks.	27
Brussels, 2	42
Hamburg, 96	509

Melbourne, 1 c.	£15
Rotterdam, 48	142
Calcutta, 24 dms.	8
Carbon Bisulphide —	
Antwerp, 5 t. 6 c.	£70
M. Video, 5	80
B. Ayres, 1 9	17
Caustic Potash —	
Stockholm, 10 c.	£12
Caustic Soda —	
Algoa Bay, 4 t. 19 c.	£59
E. London, 12	18
Cape Town, 1 18	54
Mauritius, 4 4	42
Napier, 10 15	116
Natal, 4	7
Chemicals (otherwise undescribed)	
Adelaide, 3 c.	£12
Calcutta, 3	9
Bombay, 1 t. 16	120
Invercargill, 16 pkgs.	37
Lyttelton, 9	32
Timaru, 6	30
Mauritius, 9	123
Montreal, 3 cs.	124
Antwerp, 1	10
Citric Acid —	
Rangoon, 1 c.	£9
Hamburg, 1 ck. 1 t.	225
Libau, 10	479
Ibrail, 1	9
Galatz, 1	9
Rotterdam, 5	42
Genoa, 1	209
St. Petersburg, 1	20 kgs. 165
Adelaide, 1	9
Pt. Elizabeth, 3	27
E. London, 5	47
Coal Products —	
Aniline Dyes	
Sydney, 3 cs.	£35
Aniline Oil	
Rotterdam, 36 dms.	£1,050
Aniline Salts	
Venice, 6 cks.	£40
Anthracene	
Rotterdam, 455 cks.	£2,153
Benzol	
Rotterdam, 20 cks.	£175
Hamburg, 45 22 dms.	455
Terneuzen, 25 drs.	217
Calais, 40	358
Coal Tar Dyes	
Boston, 1 cs.	£73
Moscow, 14	420
Creosote	
Antwerp, 50 brls.	£25
Myrbane Oil	
Rotterdam, 10 dms.	£20
Naphtha	
Treport, 25 brls.	£65
Melbourne, 25 dms.	16
Naphthaline	
Hamburg, 9 cks.	£31
Barcelona, 6	11
Paraffin Wax	
Wellington, 200 cs.	£580
Pitch	
Alexandria, 500 brls.	£149
Dunkirk, 288 t. 148 pkgs.	655
Cette, 1,332	1,732
New York, 500 cks. 1,200 bgs.	380
Christiania, 100 ftns.	30
Seville, 700 t.	1,050
Boston, 715 brls.	350
Hong Kong, 1,035 cks.	544
Treport, 50	74
Dieppe, 410	476
Melbourne, 11 pkgs.	8
Tar	
Mauritius, 20 brls.	£11
Boston, 200	85

Tar Salts	
Algoa Bay, 6 cs.	£30
Brussels, 12 c.	30
Toluol	
Rotterdam, 20 pns. 10 cks.	£378
Compressed Oxygen —	
B. Ayres, 2 cs.	£20
Copper Sulphate —	
Aden, 1 t.	£17
Canterbury, 3	47
Salonica, 2 7 c.	35
Danzig, 20	295
Konigsberg, 10 4	154
Batoum, 1 2	18
Corrosive Sublimate —	
Madras, 1 cs.	£25
B. Ayres, 4 c.	51
Cream of Tartar —	
Townsville, 3 c.	£12
Adelaide, 1 t.	72
Melbourne, 3 15	269
Sydney, 6 15	485
Disinfectants —	
Aden, 3 cks.	£16
E. London, 3 cs.	21
Adelaide, 2 c.	10
Sydney, 4 t. 4 13 cs.	95
Cape Town, 135 pkgs.	15
Calcutta, 3	10
Brussels, 46	62
B. Ayres, 9	48
Montreal, 1 t. 3	11
Melbourne, 50 dms.	21
Flowers of Sulphur —	
E. London, 2 t. 14 c.	£30
Guano —	
Barbadoes, 314 t.	£3,454
Orotava, 7 10 c.	70
Maure —	
Havre, 25 t.	£100
Nevis, 4 10 c.	40
Cape Town, 345 17	2,241
Lisbon, 35 15	251
Constantinople, 6	2
Hamburg, 296 17	1,050
Berbice, 40	410
Oporto, 35	300
Jamaica, 20	220
Genoa, 11 16	36
Valencia, 5	50
Barbadoes, 50	500
Rouen, 10	50
Boston, 1	15
Cologne, 25	100
Neringden, 125	500
Jersey, 101 10	651
Las Palmas, 25	125
Metallic Sodium —	
New York, 3 t.	£676
Nitric Acid —	
Singapore, 10 c.	£15
Oxalic Acid —	
B. Ayres, 1 ck.	£9
Demerara, 4 t. 19 c.	146
Phosphorus —	
Melbourne, 3 c. 10 cs.	£131
Oporto, 6	50
Potash —	
Colombo, 7 c.	£10
Potash Crystals —	
Melbourne, 7 c.	£50
Brussels, 4	23
Halifax, 7	40
Oporto, 2	16
Potash Salts —	
Adelaide, 2 t.	£251
Sydney, 3	373
Natal, 21 5 c.	2,984

Potassium Bichromate —	
Melbourne, 14 c.	£31
Potassium Chlorate —	
B. Ayres, 5 cks.	£40
Potassium Cyanide —	
Montserrat, 3 c.	£20
Rio de Janeiro, 4	37
B. Ayres, 4 cs.	23
Reval, 2	19
Auckland, 5 t. 3	792
Salt Cake —	
Antwerp, 155 t.	£271
Saltpetre —	
Melbourne, 3 t.	£65
Oporto, 2 4 c.	45
Pernambuco, 3 6	76
Madeira, 5	7
Vigo, 7 10	152
Sheep Dip —	
Wellington, 50 cs.	£250
Lyttelton, 10 cks.	70
E. London, 500 pkgs.	1,500
Melbourne, 50 cs. 21 t. 14 c.	480
Magallanes, 50	125
Invercargill, 15	26
Auckland, 54 pkgs.	29
Soda —	
Jamaica, 2 t. 13 c.	£11
Cape Town, 3 6	11
Soda Ash —	
Sydney, 26 t.	£126
Auckland, 26 10 c.	135
Soda Crystals —	
Rio de Janeiro, 2 t.	£9
Cape Town, 17 c.	5
Aden, 1 3	4
Sodium Arsenate —	
Algoa Bay, 5 t.	£173
Sodium Bicarbonate —	
Trinidad, 1 t.	£8
Habana, 2 10 c.	5
Townsville, 2 10	90
Adelaide, 3	19
Sodium Carbonate —	
Auckland, 3 t. 2 c.	£10
Sodium Silicate —	
Melbourne, 1 t. 5 c.	£4
Sodium Sulphate —	
Ghent, 60 t.	£60
Spent Oxide —	
Dunkirk, 250 t.	250
Strontium Nitrate —	
Calcutta, 5 c.	£11
Sulphur —	
Cape Town, 1 t. 5 c. 50 kgs.	£69
Pernambuco, 2 6	17
Sulphuric Acid —	
Colombo, 10 cs. 4 c.	£18
Aden, 20	19
Durban, 7	5
Trinidad, 7 chys.	20
Natal, 1 t. 10	7
Superphosphate —	
Grenada, 4 t.	£20
Tartaric Acid —	
Hamburg, 3 pkgs.	£9
Bombay, 3 c.	17
Rangoon, 2 cs. 3	31
Calcutta, 1	6
Valencia, 7	35
Wellington, 5	18
Melbourne, 1 t.	94
Rotterdam, 1	6
Auckland, 1	6
E. London, 2	12
Sydney, 3 10	347
B. Ayres, 10	53

LIVERPOOL.

Week ending November 29th.

Albumen—		
Rotterdam,	6 c. 2 q.	£15
Alum—		
Vigo,	1 t.	£5
Alexandria,	7	42
Pisus,	1	7
B. Ayres,	5 2 c.	25
Constantinople,	1 9 2 q	7
Alumina Sulphate—		
Port Louis,	1 t 2 c.	£6
Ammonium Carbonate—		
Hamburg,	5 c	£8
Rotterdam,	1 t.	34
Ammonium Chloride—		
Genoa,	16 c. 1 q	£28
Leghorn,	11	19
Syra,	5	18
Constantinople,	11 1	18
Larnaca,	2	4
Smyrna,	1	37
Aleppo,	1 10	53
Amsterdam,	4	7
Philadelphia,	3 3	70
Ammonium Sulphate—		
Demerara,	86 t. 1 c.	£1,123
Malaga,	100 5	1,350
Valencia,	110 2 3	1,426
Gr. Canary,	10 5	135
Rotterdam,	51 11 2	696
Antwerp,	52 6 1	706
Genoa,	10 4 1	134
Hamburg,	5 1 2	68
Barcelona,	22 2 1	298
Penang,	31 5 2	403
Amorphous Phosphorus—		
Hiogo,	10 c.	£100
Antimony—		
Lisbon,	2 cks.	
Asbestos—		
Manilla,	1 c.	
Mollendo,	1	
Barium Chlorate—		
Carril,	1 c.	£5
Barytes—		
Lisbon,	9 cks.	
Bleaching Powder—		
Baltimore,	54 cks.	
Bombay,	18 cs	
Boston,	264	50
Calcutta,		
Carril,	4	
Havre,	25	
New York,	118	
Passages,	86	
Philadelphia,		49
Rotterdam,	15	
Havana,	20	
San Sebastian,	29	
Boric Acid—		
Hamburg,	4 t. 1 c.	£152
Copenhagen,	3 10	128
Borax—		
Hamburg,	10 t. 8 c.	£312
Matanzas,	10	15
Rotterdam,	1 6 2 q.	40
Stettin,	2 18	80
Pisus,	4	6
Portland M.,	2 11 1	74
San Luis, Potosi,	8	14
Calcium Chloride—		
New York,	10 t. 2 c	£26
Carbolic Acid—		
Hamburg,	8 t. 7 c	£401
Teneriffe,	7	8
St. Thomas,	1 1	16
N. Orleans,	12 8 2	478
Rotterdam,	10	600
Castor Oil—		
Old Calabar,	1 cs.	
Addah,	10	
Demerara,	20	
Caustic Soda—		
Baltimore,	100 dms.	50 brls.
Beyrout,	35	
Buenaventura,	31	
Carril,	7	
Chicago, Ill.,	50	
E. London,	53	
Genoa,	55	
Melbourne,		10 pkgs.
Pernambuco,	55	
Rio de Janeiro,	20	
Cardenas,	30	
Ceara,	10	
Galveston,	25	
Mauritius,	10	
New York,	288	
Sydney,	19	
Tampico,	300	
Vigo,	4	

Chemicals (otherwise undescribed)

Alexandria,	2 t 12 c.	£88
Beyrout,	2 14	80
Rotterdam,	10	18
No-rkoping,	5	9
Hamburg,	4	7
New York,	9 10	235
Sydney,	5	9
Yokohama,	2	74
China Clay—		
Bombay,	50 t.	
Boston,	455 10 c.	
Chloride of Lime—		
Teneriffe,	11 c.	£7
Callao,	10	6
Port Louis,	18	0
Citric Acid—		
Rio de Janeiro,	2 c	£18
Coal Products—		
Aniline Colours		
Calcutta,	1 ck.	
Aniline Oil		
Genoa,	8 dms.	
Aniline Salts		
Lisbon,	1 ck.	
Tar		
Genoa,	1 ck.	
Leghorn,	1	
Penang,	100	
Tar Oil		
Algon Bay,	35 cks.	
Copper Sulphate—		
Seville,	10 t	1 q. £158
Teneriffe,	5 c.	5
Catania,	10 2 2	160
Talcahuano,	1 10	23
Vigo,	2 11 2	40
Marseilles,	124 17 1	2,000
Vera Cruz,	4 10 3	67
Copenhagen,	1 2 3	16
Cream of Tartar—		
Vera Cruz,	2 c. 3 q.	£13
Farina—		
Antwerp,	11 cks.	
Gypsum—		
New York,	36 t. 3 c.	£133
Iron Oxide—		
Callao,	50 t.	£75
Lime—		
Antigua,	12 cks.	£15
Boma,	5 t.	5
Demerara,	122 4 c.	131
Litharge—		
Oporto,	2 cks.	
Magnesium Carbonate—		
Valencia,	5 c. 3 q.	£10
Vera Cruz,		36
Magnesium Chloride—		
Bombay,	5 t. 5 c.	£15
Magnesium Sulphate—		
Carril,	16 c. 3 q	£4
Rio de Janeiro,	150 kgs.	
Manganese—		
Antwerp,	11 cks.	
Ochre—		
Demerara,	50 kgs.	
Oxalic Acid—		
Lisbon,	1 t. 8 c. 1 q.	£46
Rio de Janeiro,	1	30
Stettin,	5 10	140
Paint—		
Cadiz,	40 dms.	
Caibarien,	19 cks.	
Callao,	28 19 cks.	68 cs. 204 kgs
Cape Town,	20	
Curacao,	1	
E. London,	8	
Fernando Po,	24	
Hamburg,		10
Lagos,		1
Maracaibo,	5	
Calcutta,	35	220
Cienfuegos,	40 t.	
Havana,	3	
Hiogo,	20	
Iloilo,	12	
Iquique,	15	
Lisbon,	1	60
Mayaguez,	5	
Para,	4	10
Sierra Leone,	112	
Trieste,	19	
Painters' Colours—		
Algon Bay,	20 dms.	
Antofagasta,	12 cs. 8 brls.	
Aux Cayes,	50 kgs.	
Bahia,	62 15 29	
Benin,	5	
Boma,		7 cks.

Bombay,	50	4 cks.
B. Ayres,		
Calcutta,	40	
Cape Town,	36	2
Demerara,	80	10 3
Galatz,		200
Hong Kong,	200	
Maranham,		11
Para, 10 pkgs.		1
Alexandria,		126 dms
Batavia,	2	26
Malta, 1 bx. 60		
Manila,	5	41 cks.
New York,		7
Oporto,		4
Parahyba,	10	
S. John's, N'd., 200		5 dms.
Sourabaya,	40	36 12 cks. 8
Valparaiso,		
Paraffin Wax—		
Odessa,	10 bgs.	
Pisus,	8	
Venice,	20 cs.	
Phosphorus—		
Kobe,	20 cs.	£330
Shanghai,	17	170
Ptebla,	6	66
San Luis, Potosi,	5	51
Potashes—		
B. Ayres,	2 t. 4 c.	£36
Potassium Bichromate—		
Syra,	8 c.	£18
Pisus,	1 t. 4	52
Alexandria,	17	32
Potassium Chlorate—		
Hiogo,	26 t. 19 c.	£1,663
Shanghai,	1 10	95
New York,	16 5	955
Rotterdam,	1 15	120
Santiago de Cuba,	1 10	106
Lisbon,	5	21
Vera Cruz,	3 2	13
San Luis, Potosi,	4	14
Malmo,	1	56
Copenhagen,	3	172
Boston,	8 15	543
Genoa,	2 10	155
Gothenburg,	3	192
Cape Town,	1	63
Potassium Nitrate—		
Cartagena, Sp., 15 t.	2 c. 2 q.	£274
Salt—		
Amsterdam,	360 t.	
Antwerp,	425	
Barbadoes,	50	
Black River,	16 7 c.	
Brass,	25	
Calcutta,	770	
Demerara,	41	
Ghent,	164	
Kingston, Ja.,	10	
N. Orleans,	3 5	
Para,	100	
Rotterdam,	320	
Amuriz,	4 9	
Assinee,	18 15	
Baltimore,	180	
Boston,	140	
Buguma,	75	
Cameroon's,	6 2	
C. C. Castle,	6 5	
Degama,	50	16
Manila,	8 7	
M. Video,	8 7	
Noqui,	62 10	
Old Calabar,	125 7	
Opobo,	25	
Portland, Me.,	65	
San Francisco,	534 13	
Sierra Leone,	150	
Sydney,	3 7	
Saltcake—		
Baltimore,	175 t. 3 c.	£321
Saltpetre—		
Larnaca,	1 t. 5 c.	£28
Para,	4	92
Bahia,	10 2 q.	11
Sheep Dip—		
Calcutta,	1 t. 19 c. 1 q.	£43
Rangoon,	11 1	12
Hombay,	3 14 2	78
B. Ayres,	25	747
San Francisco,	12 2	210
Size—		
Barcelona,	10 cks	
Bombay,	1	
Soap—		
Accra,	154 bxs.	
Aden,	58	
Alexandria,		1 cs.
Assinee,	50	
Bathurst,	46	
Boma,	20	

Bombay,	1,745 bxs. 32 cs.	
Boston,	25	
Huguma,	200	
Calcutta,	600	
Cameroon's,	20	
C. C. Castle,	106	
Constantinople,	10	
Demerara,	3 480 2 2	
Dixcove,	100	
E. London,	1	
Gibraltar,	472 20	
Guayaquil,	600	
Hamburg,		1
Kingston, Ja.,	108	
Kurrachee,	529 1	
Las Palmas,	429	
Lucea,	300	
Malta,	37 5	
Mauritius,	60	
Montego Bay,	150	
N. Orleans,	450	
New York,	50 110	
Old Calabar,	300	
Pisus,	2	50
S. John's, N'd.,	665 1	
Cairo,	30	
Callao,	20	
Halifax,	200	
Rotterdam,	400	
Shanghai,	100	
Stettin,	14	
Soda Ash—		
Baltimore,	98 cks. 499 bgs.	
Boston,	91 1,734	
Melbourne,	80	
M. Video,		25 b
New York,	94	
Philadelphia,	33 2 864 1	
Rosario,		20
B. Ayres,		25
Ceara,		10
Genoa,		455
Gothenburg,		200
Hamburg,	13	
Leghorn,		120
Lisbon,		10
Naples,	4	
Norrkoping,		0
Oporto,		0
Rotterdam,		200
Stockholm,	4	
Venice,	2	
Soda—		
Montreal,	2 cs. 1 ck.	
Soda Alkali—		
Genoa,	170 brls.	
Leghorn,	70	
Melbourne,	40	
Odessa,	35	
Soda Crystals—		
Gibraltar,	15 brls.	
N. Orleans,		140 cks.
Constantinople,	100	
Oporto,	34	
Palermo,	34	
Smyrna,	50	
Sodium Arsenate—		
Boston,	5 cks.	
Magog,	2	
Lisbon,	1	
Sodium Biorate—		
Rotterdam,	3 t. 4 c.	
Hamburg,	20 cks.	
Portland M.,	10 brls.	
Sodium Bicarbonate—		
Adelaide,	50 kgs.	
Alexandria,		4 cks. 10
Antwerp,	7	
Barcelona,	25	5
Beyrout,	40	
Bombay,	100	
Brisbane,	100	
B. Ayres,		80
Calcutta,	637	
Melbourne,	50	
Odense,	120 2	
Palermo,	30	
Rotterdam,	20	
Marseilles,	55	
Sodium Carbonate—		
Barcelona,	20 cks.	
Sodium Chlorate—		
Danzig,	50 kgs.	
Hamburg,	70	
Sodium Silicate—		
Barcelona,	85 brls.	
Bilbao,		16 cks.
Boston,		90
Calcutta,	10	
Cartagena, Sp.,	25	20
Madrid,		
Oporto,		15
Bombay,		12
Seville,		12

Sodium Sulphate—

Bombay, 50 bgs.
Philadelphia, 100 brls.

Sulphur—

N. Orleans, 2 t. £12
Ghent, 10 19
Antwerp, 12 49
Rouen, 100 1 c. 386
Halifax, 1 10 9
Vera Cruz, 1 6
Pernambuco, 1 6

Tartaric Acid—

Calcutta, 1 c. 1 q. £6
Carril, 2 10

Turpentine—

Malta, 7 c. 2 q. £8
Manila, 100 dms.
Penang, 100

Varnish—

Genoa, 8 cks. 1 ck.
Leghorn, 8 2 8 dms.
Limon, 2
Port Natal, 2

Zinc Chloride—

Bombay, 1 t. 8 c. £22
Oporto, 7 3 q. 3
Bordeaux, 12 5 52

HULL.

Week ending November 25th.

Alkali—

Bremen, 2 cks.
Danzig, 40 bks. 35 cks.
Naples, 27
Stettin, 50 28
Trieste, 28
Venice, 46

Ammonium Sulphate—

Antwerp, 1,500 bgs.
Dunkirk, 262
Hamburg, 640
Marseilles, 843
Rotterdam, 285
Valencia, 292

Aniline Salts—

Danzig, 14 cks.

Basic Slag—

Danzig, 364 t.

Bleaching Powder—

Bombay, 140 dms.
Dunkirk, 22 cks.
Leghorn, 4
Naples, 71
Riga, 50 kgs.
Stettin, 3

Borax—

Riga, 2 cks.

Caustic Soda—

Antwerp, 8 kgs.
Cannia, 36 dms.
Helsingfors, 4 cks.
New York, 200
Riga, 368
Rotterdam, 40

Chemicals (otherwise undescribed)

Antwerp, 7 cks.
Bombay, 1,385 26 kgs.
Bari, 17 4 cks.
Christiania, 5
Copenhagen, 80 209 pks.
Danzig, 36
Genoa, 20
Gothenburg, 13 10 164
Hamburg, 57
Helsingfors, 11 15
Kurrachee, 252
Konigsberg, 3 10 pks. 2
Leghorn, 8 30 pks. 3
Libau, 3 10
Marseilles, 34
Odessa, 87 20
Riga, 20
Rotterdam, 25
Stockholm, 3
Stettin, 3

Cottonseed Oil—

Antwerp, 521 c.
Bremen, 49
Flushing, 196
Hamburg, 413
Helsingfors, 100
Konigsberg, 50
Naples, 1,410
Rotterdam, 100
Stockholm, 452
Stettin, 1,201
Trieste, 1,201

Dyestuffs (otherwise undescribed)

Antwerp, 75 bks.
Boston, 7 cks.
Christiania, 60 bks.
Danzig, 72 4 cks. 39
Flushing, 1 7
Hamburg, 1 3
Riga, 1
Reval, 1
Rotterdam, 18 2
Stettin, 1

Farina—

Rotterdam, 8 cks.

Linseed Oil—

Bombay, 325 c.
Christiania, 206
Christiansand, 119
Copenhagen, 6
Gothenburg, 8
Hamburg, 59
Helsingfors, 122
Kurrachee, 40
Leghorn, 100
Naples, 17
Trieste, 302

Mineral White—

Antwerp, 280 bks.

Ochre—

Marseilles, 8 cks.

Paint—

Bombay, 640 kgs.
Genoa, 1 cks.

Painters' Colours—

Antwerp, 5 cks. 32 cks. 9 dms. 80 pks.

Bombay, 2
Bremen, 1
Hoson, 2 153 160 50
Copenhagen, 3
Dunkirk, 10 2 cks.
Genoa, 22
Hamburg, 1 1 60 pks.
Helsingfors, 1 3 15 dms.
Kurrachee, 8
Leghorn, 20
Odessa, 112 2
Riga, 22
Rouen, 1
Rotterdam, 14
Stockholm, 2 2

Paraffin Scale—

Hango, 9 cks.

Pitch—

Antwerp, 544 t.
Christiansand, 15 cks.
Danzig, 100
Gothenburg, 105 14 cks.
Naples, 105

Salt—

Christiania, 10 bks.
Wyburg, 100

Size—

Christiania, 1 ck.
Rotterdam, 1

Soap—

Christiania, 65 cks.

Tar—

Christiania, 10 cks.
Gothenburg, 150
Stettin, 4 2 cks.

Varnish—

Antwerp, 2 cks. 8 cks.
Ghent, 1
Hamburg, 1 bl.
Leghorn, 3

GLASGOW.

Week ending November 30th.

Alkali—

Venezuela, 10 t. 5½ c. £41

Ammonium Sulphate—

Demerara, 25 t. £300
Hamburg, 50 694

Bleaching Powder—

Bombay, 4 t. 1¼ c. £46 16s.

Boracic Acid—

Japan, 2 t. 10 c. £80

Borax—

Japan, 2 t. 19½ c. £86

Caustic Soda—

New York, 58 t. £475
Venezuela, 15 3½ c. 199
Cuban, 4 18¼ 7 lbs. 55
New York, 474

Coal Products—

Creosote
Trinidad, 19 t. 2 c. £55
Bordeaux, 110 250
Pitch
Oporto, 50 t. £50
New York, 58 4 c. 88
Portland, Me., 122 9 188
Bordeaux, 114 14 £154 17s.
Hamburg, 80 brls. 16

Tar

Bombay, £37

Tar Oil

Bordeaux, 6 t. £15

Colours—

St. Kitts, 2 t. 6 c. £37

Cottonseed Oil—

Hamburg, 30 brls. £126

Dyestuffs—

Extracts
Portland, Me., 9 t. 11 c. £169

Fustic Extract

Portland, Me., 7 t. 2½ c. £282

Logwood

Portland, Me., 26 t. 7¾ c. £192

Lead Acetate—

Bombay, 3 t. 2 c. £45 15s.
Portland, Me., 2 1¼ 30

Linseed Oil—

B. W. I., 2 t. ½ c. £18
St. Kitts, 1 7 23

Magnesium Sulphate—

Bombay, 25 t. 2 c. £110

Manganese—

Hamburg, 9 t. 10 c. £81

Paint—

Mauritius, £237
Venezuela, 2 t. 3 c. 58
Alexandria, 4 5½ 60
New York, 17¾ 22
Calcutta, 20 4 348

Painters' Colours—

Hong Kong, £45
Cape Colony, 86
Mauritius, 2 t. 13 c. 35
Bombay, 17 16 234
New York, 78
Trinidad, 1 10½ 23
Demerara, 1 17½ 42

Paraffin Wax—

Cape Colony, 6 t. 13¾ c. £211
Antwerp, 120
Bilbao, 5 2 55
Hamburg, 10 cks. 23

Potash Salts—

Cape Colony, 31 t. £302

Potassium Bichromate—

Japan, 17 t. 19½ c. £718
Bombay, 4 7¼ 165
Antwerp, 14 19 576

Salicylic Acid—

Trinidad, ½ c. £23

Soap—

Venezuela, 11½ c. £58
Bombay, 1 t. 19 31
St. Kitts, 17 1 250
Hamburg, 3½ 5

Sodium Bichromate—

Bombay, 1 t. ¼ c. £31
Antwerp, 26 7¼ 820

Sodium Silicate—

Venezuela, 10 t. ¼ c. £41

Sulphuric Acid—

Trinidad, 5 t. 12½ c. £57

Tallow—

Rotterdam, 11 t. 18 c. £526
Amsterdam, 1 3 35
Trinidad, 1 7½ 50

White Lead—

Calcutta, 3 t. 10 c. £50

TYNE.

Week ending November 25th.

Alkali—

Rotterdam, 10 t. 7 c.
Amsterdam, 127 5

Alum Cake—

Calcutta, 100 t. 3 c.

Ammonia Alkali—

Aalborg, 10 t.

Ammonium Chloride—

Copenhagen, 6 c.

Antimony—

Hamburg, 5 t.
Antwerp, 1
Rotterdam, 1

Asbestos—

Hamburg, 6 lbs.

Barium Carbonate—

Hamburg, 106 t. 12 c.

Blanc Fixe—

Copenhagen, 10 t. 2 c.
Libau, 5 5

Bleaching Powder—

Gothenburg, 10 t. 1 c.
Antwerp, 67 2
Christiania, 15
Rotterdam, 8 13
Copenhagen, 10 19
Drontheim, 10
Konigsberg, 22 10
Amsterdam, 33 8

Caustic Soda—

Christiania, 13 t. 17 c.
Ghent, 2 2
Rotterdam, 6 16
Malmo, 4 18
Seville, 215 3
Genoa, 41 15
Amsterdam, 11 3

China Clay—

Calcutta, 281 t.

Copperas—

Bergen, 2 t. 12 c.

Litharge—

Rotterdam, 5 c.

Magnesia—

Rotterdam, 1 c.
Libau, 2 t. 9

Magnesium Carbonate—

Amsterdam, 6 c.

Paint—

Bergen, 1 t. 14 c.

Soda—

Gothenburg, 15 t. 6 c.
Antwerp, 9 18
Christiania, 13 13
Randers, 19 6
Rotterdam, 29 19
Aalborg, 20 15
Odense, 5 17
Amsterdam, 22 13

Soda Ash—

Hamburg, 6 t. 15 c.
Christiania, 43
Ghent, 10 2
Konigsberg, 70 1

Sodium Hyposulphite—

Hamburg, 5 t. 8 c.

Sodium Silicate—

Rotterdam, 2 t. 16 c.

Sulphur—

Antwerp, 12 t. 10 c.
Christiania, 100
Ghent, 5
Gothenburg, 120

Superphosphate—

Aalborg, 193 t. 1 c.

Tallow—

Hamburg, 14 c.

White Lead—

Copenhagen, 1 t. 7 c.

GOOLE.

Week ending November 22nd.

Chemicals (otherwise undescribed)

Antwerp, 10 cks.
Hamburg, 10 dms.
Rotterdam, 90 cks. 20 pks.

Coal Products (otherwise unles.)

Antwerp, 49 cks.
Boulogne, 32 pks.
Ghent, 1 cks. 46 cks. 10 tins 16 dms.
Rotterdam, 98
Rouen, 6

Pitch—

Antwerp, 571 t.

GRIMSBY.

Week ending November 25th.

Chemicals (otherwise undescribed)

Dieppe, 120 pks.

Coal Products (otherwise undes.)

Dieppe, 161 cks.

Dyestuffs (otherwise undescribed)

Dieppe, 2 cks. 14 cks.

Farina—

Hamburg, 40 bgs.

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Readers are invited to forward items of intelligence, or cuttings from local newspapers, of interest to the trades concerned.

Articles, reports, and correspondence on all matters of interest to the chemical and allied industries, home and foreign, are solicited. Correspondents should condense their matter as much as possible, write on one side only of the paper, and in all cases give their names and addresses, not necessarily for publication. Sketches should be sent on separate sheets.

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CURRENT TOPICS.

WHOSE FAULT WAS IT?

THE inquiry into the circumstances attending the death of the two men who were killed by the fall of a chimney at Huddersfield last month is somewhat peculiar, since it infers that blame attached to someone, but nothing seems to have been done to saddle the blame on the right shoulders. What was done amounted in all to promulgating a somewhat indefinite proposal—that the Board of Trade should institute a system of inspection for large stacks. The original chimney seems to have been built with an insufficient base at the outset, and though the firm were ill-advised by an inexperienced person to lengthen the chimney by thirty feet, the inexperienced person apparently was not taken to task for giving wanton advice on such an important point.

Moreover, the Borough Surveyor stated that had plans for the lengthening of the chimney been submitted they would not have been passed.

Some time ago such severe restrictions were imposed upon chemical manufacturers in Manchester as to how chemical plant, and even furnaces, were or were not to be constructed,—plans having in all cases to be submitted—that the Corporation had to be petitioned (and successfully, too) to mitigate the conditions. But we hardly think that manufacturers would have much objection to being compelled to submit plans before lengthening a chimney stack. In a measure it would remove the *onus* if an accident did perchance occur. Evidently matters in this connection are much more lax at Huddersfield than at Manchester.

Should the Board of Trade have to institute an inspection of stacks, we are sorry for them. But we should be much more sorry for the "qualified person" who would have to make an "annual inspection of all long chimneys." His inspection would be like the things he inspected—long. And so would the year have to be if he was to complete his task every twelve months. Supposing he did, what advantage would be gained? Would he be able to insist on such chimneys as he fancied were insecure being rebuilt properly? And how are the stacks to be tested? The prevention of similar accidents might largely be attained by proper inspection of the plans of new chimneys, but this surely lies more in the province of the Borough Surveyor; and existing institutions might be used to good purpose without the introduction of more inspectors. The question yet remains to be answered how it chanced that a dangerous building came to be erected without the knowledge or sanction of the Borough Surveyor. Till this point is elucidated, the inspection query can well wait.

CHEMISTRY AND ENGINEERING.

Times without number have we in these columns emphasised the close connection between chemistry and engineering, and *vice versa*. But it is a discouraging fact that the relationship is by no means fully recognised even in the last decade of

the nineteenth century. An article dealing with the debt which engineering owes to chemistry in an American contemporary has called forth a counterblast from Mr. J. Torrey (a professor of chemistry into the bargain), tending to show that chemical processes applied on the manufacturing scale owe all their success to engineering. It is unfortunate that anything like rivalry should exist between these two industries, since each is indispensable to the other where they have to co-operate. The difficulty can only be satisfactorily overcome by recognising the difference between laboratory work and manufacturing processes, and giving to the distinctive element a name, which is best covered by the title of chemical (and often physical), engineering, in contradistinction to mechanical engineering. Numbers of processes could, no doubt, be instanced in which a combined knowledge of constructive engineering, and the physical properties of materials, has been instrumental in enabling a process, otherwise complete from a chemical standpoint, to be carried out on a practical scale; the Bessemer process being a case in point. The manufacture of iron, again, shows a good record for engineering; but the utilisation of blast furnace gases and the recovery of ammonia and cyanides have been in turn equally dependent upon chemistry. Futile friction, fraught maybe with hurtful tendencies, can only result from pitting the one against the other; comparisons under the particular circumstances being more than usually odious. Professor Torrey, however, arrives finally at a conclusion touching which we are quite at one with him; and that is, that while studying chemistry with a view to subsequently engaging in industrial work, the acquisition of a concurrent cognoscence of suitable engineering principles is nowadays an essential. This fact is gradually being accepted and acknowledged, and marked success has attended the efforts of those who have essayed the teaching of *bonâ-fide* chemical engineering by specially qualified instructors. There is plenty of room for the extension of such trials, more's the pity; and especially in this country.

THE HUDDERSFIELD CHIMNEY ACCIDENT.

AN inquiry was held on Monday, at Huddersfield, touching the deaths of John Ellis, 52, stover, Artisans' Dwellings, Huddersfield, and Jacob Dawson, 41, stover, Zetland-street, Huddersfield, who were killed on the 18th November by the fall of a chimney at the works of Messrs. Tom Liversidge and Sons, dyers, Canal-street, Leeds-road, Huddersfield. Mr. J. Waugh, C.E., Bradford, who had inspected the place of the accident by order of the Home Secretary, acted as assessor on behalf of the Coroner. It appeared that the chimney in question was originally built for 25 yards; but a few years ago it was decided to lengthen it by ten yards, and this was done. It was not quite clear whether the plans for alteration were ever sent to the Corporation to be passed, and the work of lengthening the chimney proceeded under the direction of a man named Chapman. It now appeared that a tracing had been found of the chimney, and it showed that for a length of 25 yards it should have a base of 6ft. 6in., but the chimney seemed to have been built with a 6ft. 1½in. base, and the pedestal had been built into the wall at the rear of the boiler-house. It was a square chimney, and apparently built of good material, but it was the opinion of Mr. Dugdale, the borough surveyor, that there was not enough freedom for oscillation, and that every time it oscillated the chimney was weakened by coming in contact with the wall near the roof. It was agreed that the base was not sufficient, and had plans been presented Messrs. Liversidge would not have been allowed to lengthen the chimney.—After a two hours' consideration the jury found a verdict to the effect that the two men Ellis and Dawson were accidentally killed by the fall of the chimney in question; that the chimney had not sufficient base to allow ten yards to be put on the top; that the firm were badly advised in raising the chimney on the authority of an inexperienced person; that the primary cause of the fall was want of free oscillation, and that it was hastened by the gale; and that some qualified person should be instructed by the Board of Trade to make an annual inspection of all long chimneys.

Parliamentary Gossipings.

FACTORY INSPECTION.

IN the House of Commons, last week, Captain Naylor-Leyland asked the Secretary of State for the Home Department whether Mr. J. H. Bignold was the only inspector of factories in the four counties of Norfolk, Suffolk, Cambridgeshire, and East Essex, a district which contained a population of 1,500,000; whether he was aware that there were over 10,000 outworkers' places in the four towns of Norwich, Ipswich, Colchester, and Cambridge, in the district; whether it had been represented persistently and continuously to him since the month of August, 1892, that one factory inspector in so large a district, with so great a population, with so many factories and workshops, was totally insufficient; and whether he proposed to take any steps in the matter; and if so, when?

Mr. Asquith: The statement in the first and second paragraphs are substantially correct. Mr. Bignold was transferred to this district at his own request in April, 1892. In the case of workshops, the duty of inspection rests, in the first instance, under the Act of 1891, with the local sanitary authorities, and I regret that it has not been more vigorously discharged. In my opinion the staff of factory inspectors, both here and in other parts of the kingdom, is undermanned in view of the increasing weight and complexity of the duties cast upon them. I have already added considerably to it, and I hope to make further additions, which will give the inspector in this district, amongst others, sensible relief during the ensuing financial year.

IMPORTATION OF FOREIGN COAL.

Mr. Legh asked the President of the Board of Trade whether any importation of foreign coal took place during the recent strike; and, if so, of what amount?

Mr. Mundella: The quantity of foreign coal imported into the United Kingdom during the months of August, September, October, and November, 1893, was 15,641 tons, of which Germany furnished 1,120, Holland 7,062, Belgium 2,524, France 209, New South Wales 3,518, and the United States 1,208.

CIRCULARS IN OPEN ENVELOPES.

On Monday Sir F. Dixon-Hartland asked the Postmaster-General whether he was aware of the great risk and inconvenience caused by the permission to post circulars, &c., in open envelopes, and the large number of letters that thus got wrongly delivered and destroyed; and whether he would in future insist that all such envelopes should have such fastenings as would prevent such inconvenience?

Mr. A. Morley: The hon. member will bear in mind that the innovation referred to was long pressed upon the Department, and there is no doubt that there is an attendant risk and inconvenience such as that to which he alludes, but very few complaints have reached the Department, and I fear there is no way of giving practical effect to the suggestion made in the last paragraph of the question.

Sir F. Dixon-Hartland asked whether the Post Office could not make a regulation requiring such envelopes to be open at the sides instead of at the top, which would make it impossible for other letters to drop inside?

Mr. A. Morley replied that letters were of all shapes and sizes. An opening at the side of one might be as large as the opening at the top of another.

THE CORDITE CASE.

Mr. Hanbury asked when the action of Nobel *versus* Anderson (Director-General of Ordnance Factories) was to be tried, or whether it was again to be postponed to another term?

Mr. Woodall: I am informed that this case is not likely to come on before January 11th. The responsibility for any delay does not rest with the War Department.

WATER SOFTENING PLANT.—Messrs. Thwaites Brothers, Bradford, have taken up the manufacture in England of Messrs. A. Howatson & Co.'s water softening apparatus and filters, which have been largely adopted by paper makers in France, where, we are informed, eight plants have been erected, filtering 2,608,000 gallons daily.

THE LABOUR COMMISSION REPORT.—The report of the Royal Commission on Labour will, it is stated, not be completed before the end of the present year; indeed, there is little expectation that it will be ready until after the opening of the next session of Parliament. The commissioners hope that they will be able to agree upon such portions of the draft report as narrate the course of the inquiry, the general drift of the evidence, and the present position of labour questions. There will be considerable difference of opinion when they come to deal with the question of the unemployed, or with the recommendations to be made. Neither of these subjects has yet been approached, and the labour members are not unlikely to find themselves compelled to present a minority report.

SOCIETY OF CHEMICAL INDUSTRY.

SCOTTISH SECTION.

THE second meeting of the new session was held in the Philosophical Institution, Edinburgh, on December 5th. Mr. E. C. C. Ford, the president of the society, occupied the chair. The chief paper was an exposition on the "Manufacture of Oil-Gas," by John Laing, F.I.C., and, as discussion on oils is invariably an "draw" with the Scottish section, there was an unusually gathering, most of the mineral oil companies of the country being present. Mr. Laing has recently brought out a new apparatus for the production of burning gas from oils, and one of the local Gas Companies (that of Linlithgow) has adopted his system, and is now using the necessary plant. The paper, which consisted of a description of the new still, was illustrated by a drawing in section. Laing claims that by his system the residue runs more to pitch than to tar (pitch being of higher market value), and that by a zig-zag movement induced in process, the finished gas is better suited, and rendered suitable for storing and for withstanding the variations of temperature—two objections standing against oil-gas compared with that made by the older processes. His still and adjuncts are of simple form, and practically automatic in function. Supplied with an auxiliary to coal-gas production, the cost of erection need in no case exceed £100, and the space occupied would in most cases fall within 100 square feet. In his experiments he had used 840° and 865° oil, but the still was capable of dealing with the oil in its crude state if necessary. All coal-gas manufacturers, he said, would be able to possess one or more of these stills for reserve contingencies, and for constant use. During times of coal strikes, as at present, the use of a plant of this sort went far to place Gas Companies in a position of independence and security. Mr. Laing's paper was followed by the marked attention of all present, and in conclusion, Mr. Stanford, Mr. Irvine, Mr. Macadam, Dr. Readman and other members criticised various points, and put a number of questions; from which it was made clearly evident that considerable interest prevailed as to the well-doing of the new still, once it was put to work on a practical manufacturing scale. Reference was made to the Peebles oil-gas plant, and to its drawbacks in working, and the conclusion was drawn that, so far as could be judged from the description and diagram, Mr. Laing's still would be liable to the same disabilities. Laing, Mr. Laing admitted that his tests so far had been laboratory only. He had expected that the Linlithgow practical experiment would have been at work some time before the reading of his paper fell but owing to local delays he had been disappointed in this. Dr. Readman subsequently read a short paper on "Atmospheric Pollution in Paper Pulp," founded on experiments he had been making. Samples, as received from the mills, were exposed to the atmosphere, and variations of moisture and temperature being regularly taken, and analyses of pulp weight carefully tabulated at stated intervals. A portion of the meeting reference was made to the approaching anniversary of the society at Edinburgh, and the desirability of taking steps in time as would ensure a conspicuous success for the event. The membership of the Reception Committee will be enlarged.

THE GAS SUPPLY OF LONDON.

THE quality of the gas supplied to the City of London for the week ending December 2nd, 1893, was good. According to the report of Mr. W. J. Dibdin, chemist and superintendent gas examiner to the London County Council, the tests made at various testing stations showed no deficiencies in illuminating power. The following figures have been prepared from the tests, and show the average composition of the gas calculated on the standard test:—

Company.	No. of districts tested.	Illuminating power (in stand. sperm candles).	Sulphur. Grains in 100 cu. ft.	Ammonia. Grains in 100 cu. ft.	Sulphuretted Hydrogen
		Mean average.	Mean average.	Mean average.	
Light and Coke Co.	12	16.42	11.27	0.32	Nil.
Metropolitan Gas Co.	6	16.55	11.61	0.25	Nil.
Commercial Gas Co.	2	16.25	8.90	0.65	Nil.

The standard gas supplied by these companies should have an illuminating power of 16 sperm candles, and contain not more than 22 grains of sulphur and 4 grains of ammonia per 100 cu. ft. of gas, on an average of three days, with a pressure of one inch between sunset and sunrise, and six-tenths of an inch between midnight and sunset.

EXPORTS OF ALKALI AND BLEACH.

THE following figures, which are taken from the official foreign and colonial statistics of the United Kingdom, give the amount and value of alkali and bleaching materials shipped to the undermentioned countries during the month of October, 1893, as compared with the same month in 1892:—

ALKALI.

Port.	1892.	1893.	1892.	1893.
	Cwts.	Cwts.	£	£
Russia	44,292	31,307	19,752	12,971
Sweden and Norway	14,172	8,494	4,536	1,866
Germany	10,967	19,376	5,371	5,353
Holland	4,470	6,965	1,717	1,330
France	2,231	1,028	984	368
Spain and Canaries	21,264	5,590	10,495	2,452
Italy	14,460	15,462	6,481	4,801
United States	412,173	198,348	135,563	55,653
Australasia	14,561	7,738	5,362	3,117
British North America ..	37,382	30,604	11,800	8,441
Other countries	64,912	71,710	25,424	22,957
Total	640,884	396,622	227,485	119,309

BLEACHING POWDER, ETC.

Port.	1892.	1893.	1892.	1893.
	Cwts.	Cwts.	£	£
United States	104,461	45,471	44,763	18,888
Other countries	54,019	51,419	21,743	21,029
Total	158,480	96,890	66,506	39,917

IMPORTS AND EXPORTS FOR NOVEMBER.

THE Board of Trade returns for the past month can hardly be said to be otherwise than satisfactory, taken on the whole. The imports of wood pulp have increased notably, to the detriment of the imports of esparto and linen rags. Sodium nitrate also shows a marked decrease. The disturbance in the alkali trade is evidenced by the decline in the exports of alkali, bleach, and glass.

IMPORTS OF FOREIGN AND COLONIAL PRODUCE.

		Quantities.	
		1892.	1893.
Margarine	Cwt.	112,259	113,554
Copper ore and regulus	Tons.	16,466	17,998
Hides—dry and wet	Cwt.	82,745	61,135
Nitrate of soda	Tons.	6,425	673
Tallow and stearine	Cwt.	84,428	62,605
Tin	Cwt.	39,913	77,835

EXPORTS OF BRITISH AND IRISH MANUFACTURES.

		Quantities.	
		1892.	1893.
Alkali	Cwt.	543,747	477,014
Cement	Tons.	39,084	32,898
Coal and Coke	Tons.	2,723,136	2,231,402
Copper—all kinds	Cwt.	125,624	74,077
Iron and Steel	Tons.	230,618	184,835
Chemical Manures	Tons.	25,150	20,240
Oils—seed	Tons.	5,723	4,743
Salt	Tons.	65,009	46,233

TELEPHONIC COMMUNICATION BETWEEN LIVERPOOL AND VYRNWY.—Telephonic communication has been effected at every station along the route from Liverpool to Vyrnwy. The work has been done by Messrs. A. W. Shaw and Co., of Stockport. In all 26 stations have been connected. A special feature of the installation is that the end stations can be in communication without in any way affecting the intermediate stations. The total distance of the lines laid is about 115 miles. Some 16½ tons of copper wire have been used. As well as the telephonic communications there are also alarm contacts to valves, and for overflows, ringing bells at the nearest signalling station.

THE EDUCATION OF INDUSTRIAL CHEMISTS.

BY PROFESSOR GEORGE LUNGE.

(Continued from page 374.)

IT will be granted on all sides that at this time of day no technical chemist is worthy of that name who does not possess a sound and thorough knowledge of general chemistry. The time is past when the rule of thumb was paramount; when most factory managers recruited themselves from the ranks of "practical" men, understanding thereby mechanics, manual labourers, or business men, who looked down upon the chemist—if such a person was at all attached to the works—as a testing machine, to be kept in his proper place and to be mistrusted, whenever he ventured for a moment beyond the hole which was by courtesy styled the "laboratory." Nor were these "practical men" altogether wrong in their estimation of the "chemists" they came in contact with; for the majority of those chemists had started as bottle washers to a "chemist" similarly educated, and had at best acquired some smattering of chemistry at a night school or the like. These men were often qualified by natural quickness of intellect or by a practical turn of mind for better things, but science could not lead them on, for of that they were really almost innocent. This sort of works' chemist lowered the standing of the whole profession. Even many so-called "analytical chemists" were only brought up to this profession as apprentices, as to an ordinary handicraft, and these were only a step or two more advanced in science than those who had commenced with the bottle-washing department. This state of things is not so far removed from the present time as some of my hearers may think. Thirty years ago, when I transferred my abode from Germany to England, I found it to a great extent prevailing in the latter country, and it was not altogether unknown in the former. Even then many scientifically educated chemists had been turned out, chiefly by the German laboratories; but they had mostly to accept positions and salaries corresponding to the low estimation in which the profession of chemistry was then held at most chemical works.

The time I mention saw, however, the commencement of a better era. Just about that epoch the new industry of coal-tar colours, which had commenced with the discovery of Perkin's mauve in 1856, began to assume larger and larger proportions. It had become abundantly clear that that industry could be carried on and extended by none but scientifically trained chemists; more than that, it soon became apparent that an elementary knowledge of chemistry, such as had been thought quite sufficient for practical purposes, would not do here; that chemists were required conversant with every recess of their science, and trained not merely to receive what others had discovered, but to think independently, to strike out new ways, and to enlarge the domain of science. Men really capable of doing this found an abundant field at the colour works and naturally a demand for good chemists sprung up, which was soon overtaken by the unremitting supply flowing from about thirty German and Swiss universities and polytechnic schools. The men who could not find places in the coal-tar industry overflowed into other domains of manufacturing chemistry, and soon enough it was found that men of that stamp were after all far more valuable than the old "testing slaves," as they were sometimes ironically called. The operations of manufacturing chemistry in most of its branches assumed quite a different face under the light shed upon them by science, which transformed them from a string of merely empirical rules into a carefully elaborated and constantly checked system. The difference, both in the quality of the articles and the quantitative yields, between our time and thirty years ago, is simply marvellous in many branches of manufacturing chemistry, and nobody dreams of denying that this has been brought about by the firm hold science has now got over that industry.

There is no more need of preaching nowadays that a devotee of technical chemistry must be a good scientific chemist to begin with. True, not every student needs or will penetrate to the more profound depths of science; but so much is universally granted that during his college career he must enjoy the fullest opportunity for this, and that consequently not merely the universities, but the polytechnic schools, and other institutions of the same character, as they exist in this country under various names, must be furnished with first-class teachers and first-class laboratories for general chemistry. Nor can there be the slightest doubt that a good knowledge of physics, mathematics, mineralogy, and geology should be acquired by a technical chemist, not, of course, to the same extent as chemistry itself, but still in a sound manner, not as amateur work. The biological disciplines will never be wanting at such institutions, and a knowledge of them is certainly useful and becoming for every educated man, let alone a man of science, but it would be an exaggeration to say that they are indispensable to a technical chemist as such, and they are often entirely left out in his curriculum.

Strange to say, here many students and even many institutions stop. The young men leave college, well grounded in chemistry and the allied sciences, but entirely, or at least almost entirely, ignorant of

technology, of mechanical engineering, and of mechanical drawing. This is the case at all German and at most other universities, which we must here carefully separate from the polytechnic schools, and a number of special colleges of chemistry. Although at some of these institutions some little time is given to technology, it is so little that the results of teaching it are almost nil.

What that means, nobody knows better than I. My college fell in a time when the polytechnic schools were still comparatively in their infancy, and although I had from the first intended to devote myself to industrial chemistry, I thought it most natural for that purpose, when I had finished the gymnasium in 1856, to go to a university from which I came away without any knowledge of mechanical engineering, or of chemical technology, apart from some casual allusions to it in the general chemical lectures. Even now, more than thirty-seven years after that time, hundreds of young men enter the same career in the same way. Those of them who either turn to pure chemistry (whose number must always be very small) or are lucky enough to find entrance in the scientific laboratory of a works, or else who are content to be confined for ever in the laboratory of another kind of chemical works, without a chance of rising to management, will have done quite right in having carried out their studies at a university. But those who ever mean to rise to the position of superintendent, and to get to practical manufacturing work, as far as possible, will meet with the same difficulties I did. They will become conscious of their utter ignorance of the means by which manufacturing processes are carried out on the large scale; they will be constantly put to shame by men or even youths of infinitely less learning but familiar with the working process; they will commit blunders and blunder when left to themselves, and still worse ones when they realise improvements which they have conceived, and which are possibly quite right in principle; they will not even be able to express what they want to an engineer or furnace builder, since they cannot make or even properly understand technical drawings. They will, when thus thrown upon their own resources, by dint of their ability and by long and painful labour, get the better of all these drawbacks; but many others do not succeed in their endeavours, and have either to pass over to some other career or else they are locked up in inferior places, no better than those of the "testing slaves" I have spoken of.

Far better on the whole is the lot of those young men who have acquired a knowledge of technology and engineering. They take them much less time to be at home in any factory, and they may have found a position. No previous teaching at any technical school can get them far enough to enable them to instantly take manufacture in hand and carry it on like those who are accustomed to do so. But they have been taught to think and to see matters in technical light; they know where to look for important points in the success of operations on a large scale, and they know how to translate any ideas of theirs into reality by such means as are available for factory operations. They will, of course, not be entirely free from mistakes; but their blunders will hardly ever be so gross as those of their colleagues who have received an exclusively scientific training.

A training of the kind just sketched is not, and cannot be, given at an ordinary university, but only at institutions set apart for that purpose, such as the polytechnic schools, in Europe, and the various technical institutes of technology existing in this country. Strange to say, hitherto the greatest of all industrial nations, England, is altogether without efficient institutes of the kind; and although for many years this deficiency has been clearly recognised, although the undoubted comparative decline of some important branches of industry in this land, has been traced to this cause, and although there has been lack of royal or municipal commissions, of public discussions, and of large expenditure for remedying this state of things, very little has been effected in that direction. Unfortunately for England, her splendid achievements in all realms of mind and matter have given her a feeling of innate superiority over all other nations of the world more quiet than the loud self-assertion of the French as the "nation," which professes to march in the van of civilization, but which is perhaps even more deep-seated and resolute. This feeling produces a strong undercurrent in English thought which has hitherto paralysed useful action in the quarter I am speaking of. The majority of those who have ultimately to decide on matters of technical education are under the quiet conviction that, in spite of all the lamentations about the decline of commerce and the uprising of other nations in industrial matters, it is quite sufficient to trust to English common sense, and perseverance, which will certainly tide the country over any temporary reverses and triumph over these foreign shams.

Nobody can have greater admiration for the sterling quality of the English character than myself. I have spent a dozen of the best years of a man's life in England. But it is precisely my sympathy for my adopted Fatherland that makes me mourn that fatal blindness to the defects of English technical education prevailing in that country. I will not speak of the object lesson which America is daily giving to England; for instance, in the fact that the production of that

British article iron is now considerably greater in the United States of America than in Great Britain, that coal will follow suit, and that American machinery of many descriptions has asserted its superiority. All this is well known, and is, however reluctantly, conceded in England. It is very often forgotten, moreover, that community of language is something very different from identity of race.

Those Englishmen who hold to the firm belief in the innate industrial, colonizing, political, and even physical superiority of their race over all others, forget that all this is of very recent date. The Anglo-Saxons had conquered Britain more than a thousand years, and the Normans more than five hundred years before England possessed a mercantile marine or navy to speak of.

Four hundred years ago the German Hanse-towns were immensely superior to England as maritime powers, and much more recently this applied to the Dutch. The office of the Hanse-towns, in London, was called the *Stahlhof*, because in the Middle Ages no iron or steel was made in England, and the importation of those articles from Germany formed a very important branch of trade. The blast furnace and the cementation of steel have been brought into England from Westphalia; the textile industries from the Netherlands. It is barely 150 years since England has taken the lead in these industries. How can Englishmen be blind to the thought that that lead may pass away from them, unless they make the same efforts as other nations to keep abreast with all advances of science.

Allow me to give you a very striking example of the novelty of English superiority in the field which is most familiar both to my hearers and to myself; I mean the alkali trade. The name Leblanc at once recalls the fact that the manufacture of soda from common salt was invented in France, but few Englishmen will realise the further fact that it took thirty-five years before England entered the race in this field, while numerous alkali works had been erected in France and elsewhere in the meantime. It is true that in England the alkali manufacture was impossible, so long as an enormous duty weighed upon the salt; it is equally true that immediately after this incubus had been removed, the alkali manufacture sprang up in Great Britain, and in a very short time left all other countries far behind in that line; it is true that this was not merely due to favourable external circumstances, such as the cheapness of salt and coal, and the easy communication with the sea, but perhaps quite as much to the long string of English inventions which have made the English methods of alkali manufacture the pattern from which all other nations have immensely profited. Nobody will more heartily acknowledge than I how much honour and gratitude the whole world owes in that respect to British inventive genius and British enterprise. But that cannot obliterate the fact that, on the one hand, the first British alkali works is less than seventy years old, and that, on the other hand, new methods have already partly superseded those worked out in England, and partly threaten to do so even more in the future. We behold here a strange turn of the wheel of fortune. The invention of a Frenchman, Leblanc, has laid the foundation of England's greatness in the alkali trade; but an English invention, the ammonia soda process, could not be worked out into a practical process in that country, in spite of many endeavours, and it was left to a Belgian, Solvay, to do this, and to reintroduce the process into England, where it is now carried on according to Solvay's method. It is notorious that the English alkali trade is no longer rapidly expanding, while that of the other industrial nations has made enormous strides. Customs' duties and other external circumstances partly account for this; but a very important part is also played by the more careful scientific training of the managers and chemists in the other countries, exceptions on both sides, of course, notwithstanding.

How the Germans have wrested the most brilliant of all chemical industries, that of the coal-tar colours, out of the hands of the English, in whose country the first discovery of these colours was made, and which had to supply all the raw materials for them, is an often-told story, which I need not repeat here.

All this (I could give many more examples of the same class) further confirms my opinion, that no nation, whether the American or the English, or any other, has a right to boast of being for ever in the van, and to look down upon other nations as innately inferior to itself. Natural advantages of situation, mineral wealth, inventive genius, accumulated capital, an enterprising spirit, are all enormously important factors in creating and extending industries, but they are not omnipotent, not even if all combined; the victory over all these accidental or inarticulate forces will ultimately fall to the scientifically-trained human mind; just as the engineer in charge of a large steamer holds in subordination not merely all the brute powers of fuel, furnaces, and machinery, but also a large number of human beings, immensely superior to him in bodily strength, but inferior in knowledge.

Well, how is a first-class engineer brought up? Merely on a knowledge of the physical and mathematical theorems concerning the action of steam and the laws of motion? Certainly not. Nobody would expect such a man to be able either to build or to work an engine.

He must be brought face to face with the hard facts of reality; he must know all about casting, forging, and other ways of shaping metal; he must know a great number of practical points indispensable for designing machinery, and too many other matters to enumerate here. And it is just the same with a manufacturing chemist. If he enters practical life trusting merely to theoretical knowledge and to such practice as he has gained with glass, porcelain, and platinum vessels in a laboratory, he is at first as helpless as a child, and he must begin at the beginning, picking up what he can on his way. Some people manage to do this very fast, and it is just to this "practical sense" that the English system of education leaves the students of chemistry; but, I say it with the fullest conviction, it is decidedly wrong there. The time is past when the crudest of all machinery would do for chemical purposes, and when chemists could try to translate their laboratory operations into manufacturing work by merely magnifying the apparatus and substituting one material for another, in which attempt they only too frequently broke down. All this has become the subject of special studies. A manufacturing chemist of first-class standing must nowadays know almost as much about the strength of materials as an engineer, and he must add to this a knowledge of the behaviour of all sorts of metals, stone, earthenware, wood, of various coatings, of joints made in different ways and so forth, against the action of ever so many chemicals under varying conditions of concentration, temperature, and pressure. He must know how to produce heat, and in many cases cold, to the necessary degree in the most efficient and economical way. The construction of furnaces of all kinds belongs to his special domain. He must know how to design large vessels of various materials, both open and closed, with or without agitating machinery adapted to special requirements. He must employ presses, pumps, drying apparatus, having regard to what will answer not merely in the engineer's workshop, but under the special conditions of chemical attack and of high temperature. The arts of disintegration, evaporation, filtering, distilling, fusing, the action of gases upon liquids and solids, the heating under pressure and other operations constantly carried on in chemical works, have been so thoroughly developed as to amount almost to special sciences. One of the most distinguished men in the domain of chemical technology, who at the same time would have done honour to any chair of pure organic chemistry, and who more than any other living technical chemist represents the theoretical element in technology, Heinrich Caro, formerly director of the *Badische Anilin und Sodafabrik*, in *Ludwigshafen*, in a lecture delivered last year before the *Berlin Chemical Society*, distinctly declares that chemists for the actual work in a chemical factory (*Betriebs Chemiker*) cannot receive their training for the above requirements at the universities, but only at the polytechnic schools, and this judgment has all the greater weight, as Dr. Caro was formerly of the opposite opinion, viz., that at least at such large works as theirs it was best for the chemists to receive a purely scientific training, leaving the constructing work to the engineers appointed at the same works, an opinion which he has seen reason to change after prolonged experience with a large number of chemists from both universities and polytechnic schools.

(To be continued.)

EFFECT OF TEMPERATURE ON IRON.

AN official statement of tests made at the Massachusetts Arsenal to ascertain the effect of temperature on the strength of iron has appeared. The specimens were heated by rows of Bunsen burners, which were arranged in a muffle, and the temperature of the test specimens were judged by their observed expansions. Each piece was heated to the temperature of the test before being strained, and its expansion determined by a micrometer, and the coefficient of expansion of each grade of metal having been determined before the tests began, the temperature could be inferred with considerable precision. An abstract of five of these tests—the temperatures being all on the Fahrenheit scale—is in evidence that the strength of steel is greater at about 500 degrees than it is at 70. These five series of tests were made with five different qualities of steel containing respectively .09, .20, .31, .37, and .51 per cent. of carbon, and the percentage of strength was obtained by dividing the tensile strength of a sample of steel at the given temperature by the strength of the same quality of steel at 70 degrees. The result presents the interesting fact that the specimens in question were all stronger in the neighbourhood of zero than they were at ordinary temperatures—all of them, in fact, showing a minimum of strength at 210° or thereabouts and a maximum of strength at about 550°.

TEA SEED OIL.—A gentleman with extensive experience in China and the East, who is at present on a visit to Colombo, states that tea seed oil is regularly used in Hong Kong and the southern parts of China as an illuminating oil. It will not, however, burn in a cold climate.

UTILISING WASTE OCHRES.

AT several iron mines in England and elsewhere, ochre occurs in a more or less impure state, and as it exists it would have little or no value. Properly cleaned and free from grit, it would, however, be saleable at a fair price, and in some instances the value would be considerable where the colour is good. The cost of dressing out such earths as those now referred to need not be large, nor is the cost of grinding to a degree of fineness suitable for paint excessive if a Globe or Cyclone mill be employed, but it would probably be preferable on the score of profit, if the material was only prepared ready for grinding, unless the colour was such as to make it possible to secure ready sales under contracts extending over some considerable period.

The crude colour-bearing earth usually contains silica in the form of sand and other impurities, and very often the colour is not that of the separated product. It therefore becomes necessary to practically test the various samples, although perhaps not in a strictly scientific manner. Generally speaking, the first thing to be done is to take a fixed weight of the crude material, say 100 ounces, or $6\frac{1}{4}$ lb., as this gives an ounce as 100, a half-ounce as 0.5, a quarter-ounce as 0.25, and so on, but rarely will a less weight than 0.25 be needed—and thoroughly separate and dissolve this in a sufficient quantity of water, straining off through a sieve with a mesh of 0.5 mm., and rinsing the solids retained on the sieve. If the material has been thoroughly separated, these solids represent waste which is valueless. The water and solids passing through the sieve should be well agitated, and then, when the solids have settled, the clear water should be syphoned off, and the sludge dried in a gentle heat which is not sufficient to cause ebullition in the vessel. When dry, the sand and heavy waste will be at the bottom of the cake, and can be removed and its weight calculated, while the colour stuff will be on top. Small pieces of this should be thoroughly ground with a pestle and mortar, and when of paint fineness the real quality of the colour will be seen. Of course, it is not all colours—or shades of colour—which have a high commercial value, but some sell very readily, good reds and yellows being among these.

Assuming that the trials show satisfactory results, the next point is to submit samples to colour manufacturers or agents, and to arrange for prospective sales, but the prices obtainable will govern the matter of working, because it necessarily follows that if the selling prices, and the costs of production too nearly approximate, the margin for fluctuations in working will be too small to make the risk a safe one, quite leaving out questions of profit. In fact, unless a fairly wide margin exists between cost of production and selling price with materials which are liable to vary in composition, considerable risk is run, and, beyond this, labour cannot be reckoned on as a constant factor at the present day, and something has to be allowed for this.

The practical treatment of the material depends on its structure, as a clayey or adhesive substance requires more disintegration than one which is either non-adhesive, or only partially so. Thus the fine material from some hematites will not readily separate when once dried, while from others it will again fall to pieces as soon as wetted. Having thus to deal with materials which differ considerably from each other, it follows that different treatment must be afforded them, as what would be successful in one case may be a total failure in another. In some cases grinding under edge runners as in the case of a chalk mill will be ample to reduce the earth to a sufficient degree of fineness, while in others gradual reduction by soaking and working in a similar mill to a clay mill will be necessary, but in each and every case the precise method of treatment can be decided only by the personal inspection of some one conversant with this class of reduction work. In every case cost of that working must be as low as can be possibly secured with efficient disintegration of the earth treated, and it must always be borne in mind that water should be the prime factor in the primary dissociation of the particles composing the earth treated, unless they be conglomerated into hard, stony masses, in which case some amount of crushing or grinding would be a necessity.

From the disintegrating apparatus, the water and solid matters should flow in an even and regular stream, and should be passed over a subsidence clarifier to take out sand and other matters, eventually passing on to settling ponds or tanks, which should be so arranged as to afford means for the sludge to become thoroughly drained from excess of moisture before being finally dried. Either one large pond or reservoir, subdivided into several compartments, or several smaller ponds are desirable, the form adopted being that which affords the most facilities for cheap and efficient construction. In no case will it be practically possible to dry the washed earth beyond a certain state in these ponds, and therefore when it has reached a stiff plastic state—say about the consistence of tempered brick earth, it should be taken out and after being air dried under cover as far as possible should be finished off by artificial means. A current of dry air propelled through the lumps or rough blocks of ochre would be the cheapest way of drying as the waste steam could be used in drying or in some cases a shed could be

heated by exhaust steam with very effective results. Where fuel is cheap, direct drying in ovens could be adopted, but unless the price obtained is a decent one, it is hardly probable that this system of final drying could be profitably used.

As to whether fine grinding would pay, the question of selling must be the guide, as over and above the working charges, there is the very important matter of renewals and repairs to be considered, and it may usually be taken that sales in bulk of the lump material are more calculated to produce profit to the proprietor of the crude stuff than sales of fine ground colour, as this latter must be delivered in barrels or drums, bags allowing too much waste. At the same time, if the sale was dependent on grinding, the cost need not be excessive, and the nett cost of the material under consideration could as a rule be kept well under ten shillings per ton if the cost of packages is excluded.—*American Manufacturer.*

THE MERSEY AND IRWELL JOINT COMMITTEE.

BLEACHERS' POLLUTION.

A SPECIAL meeting of this Committee was held last Monday at the offices, Mosley-street, Manchester, at 11 a.m., to meet a number of bleachers who were invited to appear and show cause why proceedings should not be taken against them. In all forty-seven manufacturers were invited, but of these twenty-nine gave written undertakings to complete purifying works within three months; consequently only eighteen firms had to appear before the committee. The following are the names of the firms invited to attend—John Smith, junr. and Co., Bolton; Blair and Sumner, Bolton; J. Waterhouse and Co., Toothill Bridge, Bolton; R. K. Roberts, Tottington, Bury; F. Ritson, Bury; J. Ritson, Bury; J. B. Champion and Co., Hollinsdale, Bury; A. A. Crompton, Limited, Oldham; R. Bell and Sons, Norden; J. Whittaker and Co., Radcliffe; R. A. Chambers, Whitefield; R. Kay and Sons, Prestwich; J. Mellor, Lees, Oldham; Sykes Bros., Holt Mill, Oldham; W. Howarth and Co. (dyers), Gorton; J. Rostron, Levenshulme; W. King and Co., Bollington; D. Crawford and Co., Prestwich. Of these fifteen gave an undertaking to the Committee to turn out a satisfactory effluent within three months. Three firms, viz.: Messrs. Blair and Sumner, A. A. Crompton, Limited, and J. Mellor did not appear, and their cases were adjourned to the next meeting.

With regard to the nature of the pollution Sir H. Roscoe sent the following letter to the Joint Committee:—"With reference to the meeting to be held on Monday next I have to report that 24 samples of effluents from bleach works have been submitted to Mr. Scudder for analysis. Of these four are alkaline, one acid, and the rest neutral to litmus paper. The solids in suspension varied from 1.68 grains to 55.72 grains per gallon, and the total volatile solids varied from 15.82 grains to 52.22 grains. Lime and vegetable fibre are the principal solid polluting matters, and as the effluents do not contain organic matter liable to putrefy, I am of opinion that there will be no difficulty in purification so as to meet the requirements of the Committee."

Mr. Roberts stated that after receiving Sir H. Roscoe's report he had made provision for removing the solids from his effluent, the analysis of which showed thirty-four grains per gallon of solids in suspension. Messrs. F. and J. Ritson both were serious polluters, the effluents testing for suspended solids 51 and 32 grains per gallon. The Committee expressed regret that the hard and fast rule to which they had to adhere should cause any hardship, but expert advice was always available, and land in their case was obtainable.

Mr. S. Bell, representing Bell and Sons, had a very bad effluent which he proposed to purify by passing through a walled-up cinder tip. J. Rostron stated that steps had been taken to reduce the solids in this effluent as much as possible by using bleaching liquor only, in the place of bleaching powder. Messrs. Kay and Sons had two filters, but the treatment was not satisfactory, and the logwood waste liquors were not treated. The total solids in solution amounted to 43 grains per gallon. Messrs. D. Crawford and Co., proposed to enlarge their present catch pit. The washings from the kiers went straight into the brook and not through the catch pit. Altogether, judging from the letters read from those who sent written undertakings, the attitude and action taken by bleachers was on the whole very satisfactory.

Owing to the date of the next meeting falling on New Year's Day, it was decided that the next meeting of the Joint Committee should be held on Monday, Jan. 8th, 1894. The proceedings then terminated.

A VITRIOL PLANT AT A GOLD MINE.—The Mount Morgan Gold Mining Co. about twelve months since put down a sulphuric acid plant, capable of making 100 tons of acid of 120° Tw. per month. There are four chambers. Sulphur is burnt at the rate of 20 tons a month. The manufactured acid costs from £5. to £7. per ton. The plant is operated by a foreman and four labourers. A laboratory and balance-room have lately been added. The acid formerly cost when laid down at the mine after buying at £6. and allowing for freight and breakages, about £20. per ton.

THE DANGEROUS EMPLOYMENTS INQUIRY.

Departmental Committee appointed by Mr. Asquith to inquire into the conditions of labour in the chemical, white lead, and allied trades, have issued their report.

The Committee were directed by the Secretary of State to inquire into the conditions under which lead smelting, the working of blue and the production of white lead, red lead, yellow lead, and the like are conducted, with the object of diminishing any proved ill effects on the health of the workpeople engaged therein; (2) as to the special rules which already exist with regard to the manufacture of white lead are sufficient; and (3) to suggest any precautions necessary to the industries specified for the protection of life or health. The inquiry was extended into England, Scotland, and Wales, and the Committee visited 46 works and examined 184 witnesses. The following are those industries of special interest to our readers as far as they are concerned.

White Lead.—The institution of a medical examination previous to the employment of females; the requirement of a medical certificate of absence through illness, before re-employment, for both sexes; the prohibition of females under 20 years of age from employment; the institution of a certificate of birth or baptism, or other proof of age, for males before employment; the reduction of the price of such certificates to not more than 6d.; the abolition of female labour in all cases where there is direct contact with white lead—i.e., white rollers, wash-becks, stoves, and packing; the adoption of the blue beds and head covering for females in the blue beds and all parts of the works; the provision of shoes and stockings for all females employed, and the enforced wearing of these during working hours; the provision of a hood connected with a fan for packing and storing dry lead; the provision of a dining-room; the provision of a standard hose in the white beds.

Lead and Orange Lead.—The prohibition of the use of the rake in the charges of massicot, or of red lead, or of orange lead, from the floor of the workshop or factory; the prohibition of packing of red lead, or orange lead, in the same place where its manufacture is carried on; and the provision of a hood, connected with a fan for packing massicot, or orange or red lead; the provision of bath and lavatory accommodation, with a plentiful supply of hot and cold water, soap, nail brushes, and towels; the institution of a weekly medical inspection of all persons employed in such works; the provision of prescribed drink.

Yellow Lead.—The provision of fans; the adoption of respirators for all those engaged in dry processes—e.g., carding yellow etc.; the provision of an adequate supply of Epsom salts and the prescribed drink; the provision of bath and lavatory accommodation, with a plentiful supply of hot and cold water, soap, nail brushes and towels.

Flue Smelting.—The adoption of respirators and overalls wherever dust is raised; the provision of bath and lavatory accommodation, with a plentiful supply of hot and cold water, soap, nail brushes, and towels; the prohibition of any male young person or female in such works.

Lead Smelting.—The prohibition of females and young persons from employment in cleaning the flues; the adoption of respirators and overalls for those employed in cleaning the flues; the prohibition of any person working more than two hours in the flue at a time; the requirement that every one employed in cleaning the flues must take a bath before leaving the works; the provision of bath and lavatory accommodation, with a plentiful supply of hot and cold water, soap, nail brushes and towels.

Enamelling of Iron Plates.—The institution of a medical inspection of employees at least once a month; the prohibition of females under 18 years of age from employment in a brushing-room; the institution of a medical examination previous to the employment of females; the requirement of a medical certificate after absence through illness, before re-employment, for both sexes; the provision of half-a-pint of beer and a biscuit for each female employed before beginning work; the provision of a fan to each perforated table or bench; the provision of a dining-room and a cloak-room.

Tinning and Enamelling of Iron Hollow Ware.—The provision of bath and lavatory accommodation, with a plentiful supply of hot and cold water, soap, nail brushes, and towels; the requirement that every person employed must wash face and hands before meals and before leaving the works; the prohibition of taking any meal in any part of the works except in an apartment provided for the purpose; the provision of a dining-room.

Apply Generally.—The substitution in all copies of special rules of the words "as to persons employed," of the words "duties of persons employed"; the extension to cases of lead poisoning of the same provisions as obtain in cases of accidents—namely, a compulsory report to the Inspector of Factories and to the certifying surgeon for the district.

The following suggestions are added:—

White Lead.—The treatment of the washing water from the first tank below the rollers so as to render it free from acetate of lead in solution, or the prohibition of the immersion of the workpeople's hands into this liquid; the provision of food for the operatives; the postponement of the abolition of female labour in processes where there is contact with white lead until January 1, 1896; the adoption of mechanical means for stacking, stripping, drying, and packing white lead; the discontinuance of wearing gloves for manipulating white lead; the adoption of the cambric, bag-shaped respirator; the postponement of stripping white beds until they are "mature."

Blue Lead.—The careful observance of all cases of lead poisoning which come to the notice of Her Majesty's inspectors of factories, and which have arisen in lead-pipe or sheet works, in order to accumulate sufficient data on which to base future recommendations.

The Tinning and Enamelling of Iron Hollow Ware.—The prohibition of the use of lead and arsenic in the enamelling and tinning of hollow ware for kitchen purposes.

The report concludes as follows:—

The Committee are aware that the enforcement of some of the recommendations they have made may appear to operate hardly upon the manufacturer. But they would point out that each of these reforms is actually in force in some works in the United Kingdom. The greatest change recommended by them is the exclusion of females from all direct contact with white lead. The Committee have seen four works where no women are employed in the white beds, in the stoves, or in packing. Judging from the experience they have had, they do not believe the number of women who would have to be replaced owing to this provision can be more than 600.

The Committee have noticed that the works in which the largest number of cases of lead poisoning have occurred are those where there has been the least expenditure of money and care in precautionary measures for the health of the operatives.

The Committee do not think that the precautionary measures they have felt bound to recommend will press so heavily upon employers as to materially hamper them. But they are agreed that in an industry attended with so much risk to life and health as the white lead manufacture, the same precautionary measures must be taken by all classes of employers as an essential to their continuance.

In making the foregoing report the committee have all along borne in mind the paramount claim of the operative, on the one hand, to the protection of his health; and on the other, the possibility that, by making changes too sweeping or by insisting on too extensive an expenditure of capital, they might damage and cripple the industry so as to drive it away from the country and so cut off altogether a source of employment for the industrial classes. They are aware that if the manufacture of white lead were absolutely prohibited in the United Kingdom scarcely a ton less would be used in these islands. The competition from abroad—both from America and the Continent—is very keen; but they hardly think that the alterations in and the additions to the special rules that they have suggested will materially hamper the manufacture or unfairly handicap native enterprise; and it is to be remembered that their adoption will at all events serve to satisfy those responsible for the employment of workpeople in an industry otherwise so dangerous that that employment has been safeguarded by all the expedients which a prolonged and extensive inquiry has brought to light. In the future, no doubt, practical experience may lead to further endeavours in this direction, but at the present stage of scientific knowledge the committee believe that the measures they have proposed include every precaution that can be used in reason and with safety; and if these be accepted and loyally carried out by all concerned they are of opinion that it will be long before any justification can arise for further interference on the part of the State in the management of these important industries.

Finally, the Committee desire to record, as the result of their experience, the fact that lead and all its compounds are in a greater or less degree poisonous, and that the handling or use of each or all of them is attended by danger.

ARTIFICIAL WINES IN HUNGARY.—Hungary is waging war against the sale of artificial wines, and has passed a law prohibiting trade in or the manufacture of such wines, as well as of the substances used in their preparation. The law defines wine as artificial—(a) when it is not exclusively prepared from the grape or from grape-must; (b) when it is mixed with water or with any other matters whatsoever than distilled spirits of wine and cognac. When the wine is prepared and improved in accordance with rational principles in the cellar, however, it is not considered artificial; but this point is to be the subject of an ordinance drawn up by the Minister of Commerce in co-operation with the Minister of Agriculture. Fines from 25 to 300 florins, and in other cases imprisonment up to two months also, are provided for under the law, to apply to those who offend against its stipulations.

Correspondence.

. We do not hold ourselves responsible for the opinions expressed by correspondents.

ANSWERS TO CORRESPONDENTS.

W. J. C.—We shall be pleased to do so.

J. and W. M.—We thank you for explanation.

L. H. B.—We have all now that we shall require, we think, and thank you for your prompt attention.

T. N.—It is not customary.

F. G.—It is rather late in the day. You had better send it, and we will see if it is suitable.

JUNO.—It is further afield than we care to go, the loss of time in transit being too great.

J. B.—It is a very awkward time it is true, but we will do our best, and let you know as early as possible if we are unable to do as you suggest.

THE POLLUTION OF THE SHIP CANAL.

AT the last meeting of the Salford Town Council, the Town Clerk (Mr. S. Brown) read a letter from the Local Government Board on the question of an inquiry into the pollution of the waters impounded in the Ship Canal. The letter reminded the Council of the interview which a deputation had with the President of the Local Government Board on the 12th September with reference to a similar application, and the President now saw no reason to alter the opinion then expressed by him.

Mr. Phillips moved that the letter be recorded on the minutes. He considered that if there was any justification for the appeal to hold the inquiry that justification was to be found amply in the magisterial proceedings against the Bury Corporation. That Corporation, after being allowed eighteen months to purify their waters, were summoned again before the magistrates, and were fined a small sum, which was ridiculous. They were given twelve months in which to go on doing what had been done before, which was absolutely nothing. He was sorry to say the Mersey and Irwell Joint Committee appeared to have been assentors to this arrangement. He understood Mr. Alderman Walmsley said on a previous occasion that the Joint Committee would press for the full penalty of 40s. a day. As that penalty had not been pressed for, it seemed to him the Joint Committee had not done what the Council were led by Mr. Walmsley to believe they would do, and that was to claim the full penalty. If the evil of polluting the waters was allowed to go on, he thought the Council would have to take some steps to appeal to Parliament to give them power either to supersede the Mersey and Irwell Joint Committee or give them full power to act on their own behalf.

Mr. Groves seconded the motion.

Mr. Alderman Walmsley remarked that he should be glad to assist Mr. Phillips all he could, but he reminded him that the Joint Committee were as helpless before the magistrates as anybody else.

The Mayor said he had great faith in the Joint Committee, and he had great hopes for the future. He thought the less they said about the dirty water at present the better.

The motion was carried.

Trade Notes.

DESULPHURISED COKE.—The St. Helen's Colliery Company, Maryport, is about to experiment on an extensive scale with a view to the production of coke from which all traces of sulphur have been eliminated. If the process should prove successful, the coke produced would prove of great utility.

OIL GAS AT ST. HELENS.—The oil gas plant which has been installed at the St. Helens Gasworks is now completed, and has been in operation for some little time. Eight tests at the Town Hall have shown the average illuminating power of the gas to have been equal to 17.66 sperm candles, and that no sulphuretted hydrogen was present. The tar distilling plant has been in successful operation for the past month.

PULP MILLS IN AMERICA.—The following are the paper pulp mills which have started work in the U.S.A. recently:—The pulp mill at Livermore Falls, Pa.; the pulp mill at Ausable Forks, N.Y.; the Little Falls Paper Co., Newburgh, N.Y.; the Alice Falls Co., Sandy Hill, N.Y.; the Shotts Manufacturing Co., Pen Yan, N.Y.; F. E. Robinson, Carthage, N.Y.; the Standard Pulp Co., Oswegatchie, N.Y.; the High Falls Sulphite, Pulp, and Mining Co., Potsdam, N.Y.; the Westminster Paper Co., Bellows Falls, Vt.

TECHNICAL EDUCATION IN INDIA.—According to the *Bombay Gazette Budget*, at the instance of the Industrial Association, the Poona Municipality has undertaken to prepare a comparative statement of the occupations of the population of the city with a view to ascertain what industries are common, and which require the aid of higher technical education.

THE WAY TO ADVERTISE.—Whatever opinions may be held about the virtues of the Harness Belt, and it is hard to imagine much diversity of opinion on the subject, still there is no doubt that the proprietors held accurate notions as to the value of advertising, as is shown by the following statement of the company's advertising expenses during the last four years:—1889, £15,862.; 1890, 26,610.; 1891, £42,074.; 1892, £49,797.; and 1893, £36,535., making a total of £170,880.

RUST-PREVENTING PAINT.—Red-lead paint has been found to be the best coating to prevent iron from rusting. This is seemingly a remarkable result, because red lead is a highly oxidising body, but the reason is that the red lead has the effect of producing a skin of the unoxidisable and protective black or magnetic oxide on the iron itself under the paint. Other oxidising agents, such as manganese dioxide, form a paint which preserves the iron from rust, which fact is likely to be of great industrial importance.

THE APPLICATION OF SODIUM NITRATE.—An interesting pamphlet by Dr. Max Weitz deals with the application of sodium nitrate as a manure.—How much and when. In a series of tables he gives the quantities to be applied, the time for manuring, the nature of the soil, with other remarks for oats, wheat, rye, barley, potatoes, sugar-beet, mangels, Indian corn, turnips, maize, buckwheat, tobacco, hops, hemp, and linseed. The pamphlet being published in Germany, is in that tongue, but it will well repay perusal, and is not of great length.

CHEMICAL BREAD-MAKING.—According to a contemporary, the latest and best method for making bread is by mixing the flour, salt, water, &c., in suitable closed pans, afterwards adding carbonic acid gas as now sold in syphons. The dough should be kept constantly stirred for about an hour, while at the same time it is found necessary to maintain a pressure of rather more than 2 lbs. to the square inch. The necessary ingredients can be easily added for fancy bread. Besides being rapid, it is also claimed for this process that bread made by it is free from microbes, yeast being supplanted by the carbonic acid gas.

TRANSPORTING LIQUID AIR.—Prof. Dewar has successfully conveyed a considerable quantity of liquid air from London to Cambridge, where it was appropriately exhibited at Peterhouse, the college which must always be associated with the great scientific work of Cavendish. The liquid air was carried in a double glass flask, the space between the inner and outer flask containing nothing but extremely attenuated mercurial vapour, together with a little liquid mercury. On pouring liquid air into the inner flask, its outer surface is rapidly covered with a mercurial film of extreme thinness, forming a reflecting surface highly impervious to radiant heat. As soon as this is formed the whole apparatus is packed in solid carbonic acid, which at once freezes the liquid mercury, arrests the deposit upon the mirror, reduces the mercurial vapour to an infinitesimal quantity, forms an almost perfect vacuum, and supplies an envelope 80° below zero. Thus protected, the liquid air reached Cambridge with only a trifling loss of bulk, notwithstanding the incessant jolting of the railway. The protective power of the high vacuum and the mercurial mirror will be better appreciated if it be borne in mind that the difference of temperature between liquid air and solid carbonic acid is the same as between ice and boiling water.

RHEA FIBRE.—The Indian Husbandry Company, Limited, has, according to the *Indian Forester*, acquired 209 acres of suitable land about an hour and a half's railway journey from Calcutta, and is in treaty for another 800 acres close to the former plot, on which to grow and manufacture rhea, flax, jute, hemp and other products on a commercial scale. Rhea, is an indigenous perennial plant propagated by roots, cuttings or suckers, and yields in some places five crops in a year. Its fibre is placed in a pre-eminent position by its inherent physical properties: fineness, length, lustre, strength, lightness, durability, and resistance to water, and which favour its application to various textile fabrics. It is already being converted in Europe into imitation silk fabrics, handkerchiefs, neckerchiefs, ladies' scarves, umbrellas and parasol covers, waistcloth, etc., etc. It stands a strong rival to the finest varieties of flax, and in canvas and sail cloth its superiority over flax is undoubted. It admits of advantageous admixture with wool as well as silk, and the "noils" or the waste of the fibre, when cut into lengths of two inches and mixed with cotton in the willow machine, render the yarn stronger and shining. Mr. J. Cameron, superintendent, Botanical Gardens, Bangalore, states that he has been selling Rhea roots at a nominal charge of Rs 25 per 1,000, and that he still has several thousands in stock, and could easily increase the nursery stock enormously. The chief interest taken so far in the extraction of rhea or ramie fibre from *Boehmeria Nivea* has been centred at Belfast. It is stated that the Bank of France recently had a new issue of notes printed on paper made of this fibre.

Market Reports.

THE METAL MARKETS.

LONDON, WEDNESDAY.—Pig iron active: Scotch warrants closed at 43s. 10½d., Middlesbrough 36s cash, and hematite 45s. 10½d. Copper, steady: Chili bars, G.O.B.'s and G.M.B.'s, closed at £43. 5s. to £43. 10s. cash, and £43. 15s. to £44 three months. Tin quiet: Straits closed at £76. to £76. 10s. cash, and £76. 17s. 6d. to £77. 7s. 6d. three months; Australian, £76. 15s.; English ingots, £80. 10s. Lead, easy: Spanish, £9. 8s. 9d. to £9. 10s.; English, £9. 12s. 6d. to £9. 15s. Silesian spelter: ordinary, £17. Nickel, 1s. 7½d. Antimony, £37. 10s. Quick-silver: First hands, £6. 7s. 6d.; second hands, £6. 7s. Copper shares, steady: Cape, 1½ to 1⅝. Copiapo, 2⅛ to 2⅞. Libiola, 3⅞ to 3⅝. Mason and Barry, 1⅞ to 2. Rio Tinto, 15⅞ to 15⅝. Tharsis, 4⅞ to 4⅝.

WOLVERHAMPTON, WEDNESDAY.—Pigs strong, assisted by firmness at Middlesbrough and the high price of coal. Northampton forge sorts 45s. delivered here; Derbyshires 45s. to 46s.; Lincolns 47s.; Derbyshire foundry sorts were 47s. for No. 3, and 50s. for No. 1. Staffordshire all mines, 60s.; part mines, 45s. to 47s.; common 36s. 6d. to 40s. Manufactured iron quiet; prices easy. Galvanising sheets, doubles, £7. to £7. 2s. 6d.; plates, £7. to £9.; hoops, £6. 5s. to £6. 10s.; common bars, £5. 15s.

LIVERPOOL OIL AND COLOUR MARKET.

WEDNESDAY.

OILS.—Palm oil is dull, with little or nothing doing, while prices are easier. Olive has not much to show for itself, the market being fairly steady, though quiet. Spanish has been done at £33 10s. per tun for small lots. Linseed is still weaker, and Liverpool makes are only worth 20s. 3d. to 22s. per cwt. in export casks. Cottonseed is slightly firmer at the reduction, Liverpool refined being quoted 20s. 6d. to 22s. per cwt. Castor oil, though rather quiet, is steady: good seconds Calcutta offering at 2½d. to 2⅞d., and first pressure French 2⅞d. per lb. In tallow the stocks are small, and business generally dull. Resin, common, is steady, and moves fairly well, with a tendency to hardened prices for low qualities of medium. Spirits of turpentine have fluctuated considerably, but have settled to 22s. 3d. per cwt. Petroleum quiet. American 4¼d. to 5¼d., and Russian refined 3¼d. per gallon.

COLOURS are steady without alteration in prices. Ochres: Oxfordshire, common, £10., medium, £12., best, £15.; Derbyshire, common, 40s.; medium, 50s., best, 60s.; Welsh, best, 70s., seconds, 50s., and common, 18s.; Irish, Devonshire, 40s. to 45s.; French, J.C., 55s. to 60s.; M.C., 65s. to 67s. 6d. Umber: Turkish quiet; Devonshire, 50s. to 55s. White lead, red lead, and oxide of zinc unchanged. Venetian red, £6. 10s. to £10. Cobalt: Prepared oxide, 9s. 9d.; black, 9s.; blue, 6s. Zaffres: No. 1, 3s. 6d.; No. 2, 2s. 6d. Oxide of iron: Common, £6.; medium, £10.; finest, £20. Zinc oxide, £23. to £25.

WEST OF SCOTLAND CHEMICALS.

GLASGOW, TUESDAY.

The Scotch coal disturbance is ended, happily, by the men returning to work yesterday at the old terms. This futile effort at compulsion on the part of the Union Secretaries has entailed considerable loss on all interests affected, including, especially, the interests of the misled miners themselves. A good many industrial works had been altogether stopped, and those which kept wholly or partially going had to pay for fuel prices which would have proved prohibitive if the strike had lasted many days longer.

Sulphate of ammonia has been steadily gaining, and some operators doubt whether the close of the strike will check the firming tendency much. Last Friday £13. 15s. was taken by a seller, but more has since been looked for, up even to £14.

Oils and paraffins are still in very heavy delivery from works, and reserve stocks much thinned down, owing to the impaired production.

In general chemicals the market continues easing off, and lower terms are now obtainable by buyers for both caustic and bleach.

Chief prices current are:—Soda crystals £2. 10s. nett, Tyne; soda ash £3. 17s. 6d. nett, Tyne; white alkali 48/52 £4 10s to £5. nett, Tyne; alum in lump £5. nett, Glasgow; caustic soda, white, 74° £11., 70/72° £10., 60/62° £9., and cream 60/62° £8. 15s., all nett, Liverpool; bleaching powder £7. 15s. to £8. nett, Tyne; saltcake, 22s. 6d.; borax, English refined, £30., and boracic acid, £37. 10s. nett, Glasgow; bicarbonate of soda, 5-cwt. casks, £6. 15s., and 1 cwt. casks £7. nett, Tyne; bichromate of potash, 4¼d. nett, for Scotch and English deliveries (for export, 4¼d. nett,

f.o.b. Glasgow); bichromate of soda, 3¼d. nett, for Scotch and English deliveries (for export, 3½d. nett, f.o.b. Glasgow); chlorate of potash, 8¼d. less 5%, Liverpool; nitrate of soda, 9s. 4½d.; sulphate of ammonia, £13. 15s. to £14. prompt, f.o.b. Leith; salammoniac, first and second white, £37. and £35. nett, any port; sulphate of copper, £15. 15s. less 5% Liverpool; paraffin scale, hard and soft, 1½d. per lb.; paraffin wax 120° semi-refined 2⅜d.; paraffin spirit (naphtha) 4½d. per gallon; paraffin oil, burning, standard No. 1 grade, 5d. to 5¼d. at works, for Scotch buyers (English sales ½d. to ¾d. lower); ditto (lubricating) 865° £4. 7s. 6d. to £4. 10s., 885° £4. to £5 10s., and 890/895° £5. to £6. Week's imports of raw sugar at Greenock were 11,164 bags.

REPORT ON MANURE MATERIAL.

During the week there has been more business doing, and prices on the whole rather favour sellers. The position of mineral phosphates remains without much change, though shippers of South Carolina River rock seem more disposed to meet buyers for shipment some way ahead. Quotations for 75/80% Florida rock remain 9d. for Baltic and Mediterranean, 8¼d. for ports between Havre and Hamburg, and 8½d. for good United Kingdom ports, in cargoes, cost, freight, and insurance. There is nothing doing in River Plate bones, nominal values being £4. 12s. 6d. for cargoes for shipment, and £4. 15s. to £4. 17s. 6d. for anything of handy size near at hand. Spot has been entirely cleared of everything in the shape of bones and bone meal. £5. would readily be paid for East India crushed bones or bone meal near at hand. For early shipment £5. would have to be paid, but for February-March steamer shipment £4. 17s. 6d. would probably do. Nitrate of soda is firm. On spot the value of ordinary quality is 9s., and of good to fine 9s. 1½d. to 9s. 3d. per cwt. Due cargoes are worth about 9s., and November sailings of fair test and moderate size 9s. 3d. per cwt. River Plate dried blood, to arrive, sold at 10s. 3d. per unit, ex quay Liverpool.

MISCELLANEOUS CHEMICAL MARKET.

In the alkali trade there is a general easing down in prices, though there are still large arrears of orders to make up in consequence of the late stoppage of works. For December delivery, however, prices are nominally lower in caustic soda, viz.: f.o.b. Tyne, 77½, £11. 10s.; f.o.b. Liverpool, 74½, £10. 5s.; 70%, £9. 5s.; 60%, £8. 5s.; cream, 60%, £8., 10-ton lots and upwards. Ammonia alkali, 58%, is in good demand, and supplies are somewhat scarce for prompt delivery. Spot quotations being £3. 15s. to £4. per ton, f.o.r. makers' works. Soda crystals are easy in price at £3 to £3. 2s. 6d. per ton, f.o.b. Leblanc soda ash 1d. to 1½d. per degree, f.o.b. Bleaching powder is still somewhat short in supply to meet current requirements, and the price remains steady at £8. nett, makers' works, and £8. 7s. 6d. to £8. 10s. f.o.b. Recovered sulphur firm at £4. to £4. 2s. 6d., f.o.r. Chlorate of potash 8d. less 5% for spot or early delivery, but for forward business 7¼d. is quoted. Vitriol and muriatic acids continue in good request. Salteake dull at 20s. to 25s. per ton, makers' works. The market remains firm in sulphate of copper, in which a large business is being done. Potash, caustic and carbonate, are in strong demand, and prices are firm. Brown and grey acetates of lime are unaltered in price, but in this market, and in acetates generally, the prices are firm both for spot and forward delivery. Muriate of ammonia more inquired for, and makers firmly adhere to the advance in price. White powdered arsenic selling freely and in large demand for export, spot price being £13. 7s. 6d. to £13. 10s., f.o.r. Garston, etc. For carbolic acid crystals the advance in price is maintained, but little business meantime is passing. Yellow prussiate of potash has been advanced to 10¼d., owing to short supply. Sulphocyanides less abundant, and prices firm.

TAR AND AMMONIA PRODUCTS.

The benzol market continues steady at last week's reduction, the value for 90's to-day being 1s. 6d., and 50/90's 1s. 7d. Solvent naphtha is a penny easier in price. Crude carbolic appears to continue in fairly good demand without change in price. Anthracene is quiet generally, 30% A has eased off to the extent of 1d. The satisfactory outlook for pitch continues, with prices well maintained.

The improvement in sulphate of ammonia still increases. The termination of the labour troubles in Scotland does not seem to disturb the position in the least. The expectations of sellers in holding for £13. 17s. 6d., as noted last week, have been realised, good business having been done at this price, and makers are now generally asking £14. Forward business is scarce, but transactions are reported at £13. 15s. to £13. 17s. 6d. for delivery over early months of 1894.

HULL PAINT, OIL, AND COLOUR REPORT.

TUESDAY.

OILS.—Undoubtedly the finish of the coal strike has led to some improvement in trade here. Still coal exports are not equal to expectations. The gross tonnage of the port shows a considerable improvement as against the corresponding week of 1892, being an increase of fully 5,000 tons, which is more attributable to imports rather than exports. All kinds of mineral oils have a tendency to a rise in price, which no doubt is caused by the more than ordinary demand usual at this time of the year, especially the burning oils. Why the lubricating oils should advance is difficult to explain, for demand lately has been *nil*. A tank steamer of petroleum arrived during the week, bringing 1,325,563 gallons. The oil exports show a considerable decrease, the total of linseed oil being 577 cwt. against 1,939 cwt. a year ago, and cotton seed oil 5,245 cwt. against 10,884 cwt. Refined cotton oil has quite collapsed, having declined 25s. per ton on the spot, closing dull at 18s. per cwt. naked. At this rate there are also sellers Dec.-April. Linseed oil quiet at 19s. 6d. spot, month 19s. 3d. and Jan.-April 19s.; May-August offer at 19s. 3d. and Sept.-Dec. at 18s. 9d. Coast cod oil: The position unchanged, £17. to £19. per tun. First pressure castor oil, 2½d. per lb. Sod oil, £15. to £17. per tun. Resin oil crude, £7. per tun. Olive oil unchanged. Engine and cylinder oils from 1s. to 2s. per gallon. Anti-friction greases from £6. per tun.

CAKES.—Linseed cakes quiet but steady; 95% pure, £8. 15s.; ordinary, £7. 5s. to £7. 10s. Russians, £8. 10s. Cotton cakes firm, spot; best makes, £5. 7s. 6d. to £5. 10s.; Jan.-April, £5. Rape cakes: East India, £4. 15s.; Black Sea, £4. 5s.

PAINTS.—Business continues indifferent and likely to remain so until the turn of the year. The exports of both painters' colours and chemicals each show a falling off compared with the corresponding week last year, being of the former 306 packages against 1,013 packages, and of chemicals 1,453 packages against 2,470 packages. Oxide of zinc, £22. 10s. per ton; oxide of iron dry, £9. to £18. per ton; Venetian red dry, £5 to £10. lime blue from 16s. per cwt.; ochres from 60s. per ton ex warehouse; common black varnish, barrels free, £5. 10s. per ton; ready mixed paints in various sized tins from £26. per ton; oak varnish from 6s. per gallon.

TYNE CHEMICAL REPORT.

TUESDAY.

Chemicals are quiet, though there is more business doing for next year. Prices are practically unaltered. Caustic, 76/77%, still scarce, and quoted at £11. 10s.; 70%, £9. 10s. to £9. 15s. Bleach, £7. 15s. to £8. 5s. Sulphur, £4. 5s. net.

Bleaching powder, softs, £7. 15s. per ton, nett; hards, £8. per ton, nett; caustic soda, 76/77%, £11. 10s. per ton, nett; 70%, £9. 15s. per ton, nett; recovered sulphur, 2 cwt. bags, £4. 5s. per ton, nett; soda ash, 48%, £3. 15s. per ton; 52%, £4. 2s. 6d. per ton; 56%, £4. 10s. per ton, nett; alkali, 36%, £3. per ton, nett; white alkali, 48%, £4. 10s. per ton; 50%, £4. 15s. per ton; 52%, £5. per ton, nett; hyposulphite of soda, in 5-7 cwt. casks, £7. per ton; ditto, in 1 cwt. kegs, £7. 15s. per ton, nett; silicate of soda, 75° Tw., £2. 15s. per ton, nett; 100° Tw., £3. per ton, nett; 140° Tw., £3. 17s. 6d. per ton, nett; soda crystals, in casks, £2. 10s. per ton gross weight; in 2 cwt. bags, £2. 10s. per ton nett weight; chlorate of potash, 8½d. per lb. less 6%; pearl hardening £3. per ton, nett; pure white sulphate of alumina, £4. 2s. 6d. per ton, nett; blanc fixe, £7. 10s. per ton, nett; chloride of barium, £7. 10s. per ton, nett; carbonate of alumina, £28. 15s. per ton, nett; aluminate of soda, £33. 15s. per ton, nett; in 5 ton lots, £28. 10s. per ton, nett; hydrate of barium, £10. per ton, nett.

South Durham salt unchanged, at 9s. 6d. per ton, f.o.b. Tees.

Coals: There is still a fair number of orders, though the market is a shade weaker. There has been very little forward business done so far, buyers holding off with the expectation that a considerable reduction in the present high values will take place ere long. For immediate:—Best Northumbrian steam is quoted at 15s. per ton; second qualities, 13s. 6d. to 14s. per ton; small steam, 6s. 6d. per ton; bunker coals, 10s. to 10s. 6d. per ton; coke in strong demand for best quality, at 16s. per ton.

New Companies.

Ceralite Syndicate, Limited. CAPITAL £6,000., in shares of £1. each. This company has been formed to purchase certain letters patent for the manufacture of artificial stone with glass surface, and for acquiring the protection of the registered word "Ceralite."

Paper Mills Supply, Limited. CAPITAL £2,000. This company has been formed to carry on a business under the above style, for the purchase and sale of materials suitable for the manufacture of paper, pulps, &c.

Midland Coal, Coke, and Iron Company, Limited. CAPITAL £187,500., in shares of £5 each. This company has been formed to take over the mines, blast furnaces, and general assets of the Midland Coal, Coke, and Iron Company, Limited, now in liquidation. The subscribers to the Memorandum of Association are:—T. P. G. Watkin, 94, Redcliffe Gardens, London, S.W., bookkeeper; A. F. G. Gardner, 29, Wharton-street, London, W.C., shorthand clerk; G. Tayler, 39, Ledbury-road, London, W., bookkeeper; W. Johnson, 1, Ranelagh Gardens, Putney Bridge, London, S.W., accountant; H. W. Roach, 51, Gladsmuir-road, Highgate, London, clerk; H. A. Harrison, 34, Studholme-street, London, E.C., shorthand writer; H. P. Dakin, 80a, Bramcote-road, London, S.E., clerk.

R. and J. Dempster, Limited. CAPITAL £100,000., in shares of £10. each. This company has been formed to acquire the business of gas-engineers and contractors now carried on by R. and J. Dempster, Newton Heath, Manchester. The subscribers to the Memorandum of Association are:—R. Dempster, Gas Plant Works, Newton Heath, Manchester, gas-engineer; E. Dempster, Norwood, Broughton Park, Manchester, married woman; J. Dempster, Gas Plant Works, Newton Heath, gas-engineer; M. E. Dempster, Grosvenor Mount, Cheetham-hill, Manchester, married woman; R. A. Hepworth, Gas Plant Works, Newton Heath, gas-engineer; E. Lefevre, Gas Plant Works, Newton Heath, assistant manager; J. F. Halliday, Gas Plant Works, Newton Heath, assistant cashier.

Rose, Downs, and Thompson, Limited. CAPITAL £50,000., in shares of £10. each. This company has been formed to acquire the business now carried on under the style of Rose, Downs, and Thompson at Hull, and to trade as engineers, seed crushers, oil refiners, &c. The subscribers to the Memorandum of Association are:—J. Downs, Lillie Hall, Bridlington Quay, engineer; J. C. Thompson, Perth House, Hull, engineer; J. Downs, jun., 5, Beech Grove, Newland, Hull, engineer; C. Downs, 11, Harley-street, Hull, clerk; A. H. Downs, Lillie Hall, Bridlington Quay, clerk; J. A. Jackson, Gate Helmsley, near York, solicitor; M. Jackson, 7, Parliament-street, Hull, solicitor; F. M. Jackson, 22, Parliament-street, Hull, solicitor.

The Patent List.

This list is compiled from Official sources in the Manchester Technical Laboratory, under the immediate supervision of George E. Davis and Alfred R. Davis, who report professionally upon the value of Chemical Patents.

APPLICATIONS FOR ENGLISH LETTERS PATENT.

- Rust-Preventive Paints. A. Buecher. 22,730. November 27.
Improvements for the Destruction of Rust on Iron and Steel. A. Buecher. 22,731. November 27.
Manufacture of Metals from Metallic Oxides. J. Y. Johnson. 22,731. November 27.
Cleansing and Scouring Woollen Fabrics etc., and thereby Saving Water and the Pollution of Rivers. W. H. Hughes. 22,768. November 22.
Manufacture of Paper Pulp from Wood, Straw and other Vegetable Fibres. M. Coulon, and R. Goodeffroy. 22,842. November 22.
Purifying and Heating Air. C. H. Rosher. 22,866. November 22.
Manufacture of Briquettes for Fuel. R. Middleton. 22,916. November 22.
Improved Compound for the Manufacture of Artificial Fuel. R. Middleton. 22,917. November 22.
Purifying Steam Boiler and Furnace Smoke. J. Griffiths. 22,935. November 22.
Improvements in Paints or Dryers. F. Crane. 22,961. November 22.
Improvements in Mechanical Drying Apparatus. R. Haddan. 22,963. November 30.
Coating Iron and other Plates with Tin or Terne, by means of Paraffin Wax in conjunction with Palm Oil etc. F. Watkins. 23,048. December 1.
Apparatus for Drying Wool and other Fibres. J. Dawson. 23,052. December 1.
Treating Town's Refuse and the like. S. Smithson. 23,082. December 1.
Improvements in the Manufacture of Paints. W. V. Wilson and W. E. Priest. 23,120. December 1.
Improvements in Sewage Precipitation Tanks. F. P. Candy. 23,155. December 2.
Spraying Burner for Liquid Hydro-carbons. W. H. Cowan. 23,162. December 2.
Apparatus for Utilising Petroleum, etc. as Fuel in Furnaces. J. C. Hudson. 23,178. December 2.

Gazette Notices.

Partnerships Dissolved.

- G. A. PAYNE, G. E. HANCOCK, AND F. W. GREEN, wholesale dyers and chemical cleaners, Park-street dye works, Latimer-road, E., under the style of *Pilgrim*. Payne and Hancock.
H. SAUNDERS AND C. F. BUTCHER, coal and salt merchants, Luton, under the style of *Saunders and Butcher*.
J. W. FITTER AND J. E. TAY, Aston, tube manufacturers, under the style of the *Standard Tube Co.*

IMPORTS OF CHEMICAL PRODUCTS

AT

THE PRINCIPAL PORTS OF THE UNITED KINGDOM.

LONDON.

Week ending December 2nd.

Acetate of Lime—			
N. Russia,	1 pkge.	M. D. Co.	
Acetic Acid—			
Holland,	95 pkgs.	Beresford & Co.	
"	30	Phillips & Graves	
Alkali—			
France,	110 c.	Arnati & Harrison	
Albumen—			
A. Turkey,	7 pkgs.	L. & I. D. Jt. Co.	
Alum—			
Holland,	149 pkgs.	Ohlenschlager Bros.	
Alumina Sulphate—			
Germany,	96 pkgs.	Tough & Henderson	
Aluminium—			
Germany,	£22	H. Lambert	
Antimony—			
Australia,	15 t.	Major & Field	
Queensland,	1	R. M. Moir & Co.	
Germany,	14	H. R. Merton & Co.	
Arsenic—			
Germany,	10 pkgs.	H. Wallace & Co.	
Asbestos—			
Italy,	£410	Brit. Asbestos Co.	
"	53	London Asbestos Co.	
"	70	A. H. Smith	
U. States,	224	Furness, Withy, & Co.	
Barytes—			
Germany,	34 cks.	H. Lambert	
"	23	R. Bew	
"	19	J. Kitchen, Ltd.	
Holland,	108	Magee, Taylor, & Co.	
Belgium,	50 bgs.	H. A. Litchfield & Co.	
"	13 brls.	O'Hara & Hoar	
"	164 pkgs.	J. L. Lyon & Co.	
Germany,	44 cks.	Blundell, Spence, & Co.	
Bleaching Soda—			
Germany,	30 c.	H. Lambert	
Boracic Acid—			
Italy,	40 pkgs.	J. Puddy & Co.	
Camphor—			
Germany,	121 pkgs.	T. Merry & Son	
Caoutchouc—			
France,	22 c.	H. Johnson & Sons	
E. Indies,	5	Lewis & Noyes	
"	8	R. & J. Henderson	
Germany,	54	Anderson, Weber, & Smith	
Madagascar,	116	Procter Bros.	
"	489	Hammond & Co.	
Cape,	144	"	
"	63	L. & I. D. Jt. Co.	
Zanzibar,	15	Anderson, Weber, & Smith	
E. Indies,	8	L. & I. D. Jt. Co.	
"	48	Prop. Bull Wf.	
Castor Oil—			
Italy,	5 cs.	L. & I. D. Jt. Co.	
"	10	May, Roberts, & Co.	
France,	17 brls.	J. Greig	
"	25 cks.	Lucas & Spencer's	
"	30	Colthurst & Harding	
Belgium,	58	Fuerst Bros.	
Italy,	25 cs.	Stebbing & Co.	
"	25	A. Laming & Co.	
"	35	Barron, Harveys, & Co.	
France,	12 brls.	F. W. Smythe & Co.	
Chemicals (otherwise undescribed)			
Germany,	£9	Charles & Fox	
Holland,	13 pkgs.	J. Barber & Co.	
France,	12	Charles & Fox	
Germany,	55	T. H. Lee	
"	18 A. & M. Zimmermann		
"	3	L. & I. D. Jt. Co.	
"	13	A. Zumbach	
France,	8	L. C. & D. Rly. Co.	
Belgium,	2	D. C. Thomas & Son	
Cream of Tartar—			
Holland,	10 pkgs.	Middleton & Co.	
France,	30	Finlay & Co.	
"	10	M. Ashby, Ltd.	
"	10	C. F. Gerhardt	
"	4	E. W. Carling & Co.	
"	5	F. C. Devon & Co.	
"	25	B. & F. Wf. Co., Ltd.	
"	5	W. C. Bacon & Co.	
Dextrine—			
Germany,	16 cks.	B. & N. Wf. Co., Ltd.	
Dyestuffs—			
Aniline			
Melbourne,	6 pkgs.	Tozer, Hewitt & Co.	
Anatto			
Denmark,	5 pkgs.	R. J. Fullwood & Bland	
Argols			
Italy,	150 pkgs.	Thames S. T. & L. Co., Ltd.	
Cochineal			
Canary Is.,	15 pkgs.	Johnson, Hicks, & Co.	
Cutch			
U. States,	2,499 pkgs.	Ralli Bros.	
"	25	Anderson, Weber, & Co.	
Rangoon,	523	A. Howden & Co.	
Extracts			
U. States,	10 pkgs.	T. H. Lee	
France,	245	L. J. Levinstein & Sons	
Canada,	80	A. J. Humphrey	
Norway,	2	W. E. Bott & Co.	
Austria,	63	A. J. Humphrey	
Fustic			
Jamaica,	16 t.	S. Dobree & Co.	
Gambier			
E. Indies,	186 pkgs.	S. Barrow & Bro., Ltd.	
"	2,484	Brinkmann & Co.	
"	2,359	R. & J. Henderson	
"	1,365	L. & I. D. Jt. Co.	
"	1,073	Beresford & Co.	
"	1,316	Adamson, Gilfillan, & Co.	
"	230	J. Swire & Sons	
Indigo			
E. Indies,	58 cts.	L. & I. D. Jt. Co.	
"	44	R. Von Glehn & Sons	
"	16	Arbuthnot, Latham, & Co.	
"	83	Forbes, Forbes, & Co.	
"	103	Wallace Bros.	
Myrabolams			
E. Indies,	287 pkgs.	J. P. Alpe & Co.	
Saffron			
Spain,	1 pkge.	W. J. Bush & Co.	
"	2	Hodgkinson's & Co.	
"	3	Adam Bros.	
"	3	Major & Field	
"	1	Hearon & Co.	
"	1	Middleton's S.S. Wf. Co.	
"	2	Evans, Lescher, & Co.	
Sumac			
"	50 pkgs.	H. Johnson & Sons	
Italy,	400	Beresford & Co.	
"	1,005	J. Kitchen, Ltd.	
"	350	Union L. Co., Ltd.	
"	150	W. Barter & Co.	
"	50	A. Pollimeni	
"	50	J. Knill & Co.	
"	150	Vokins & Co.	
"	15	W. Pope & Co.	
Tanner's Bark			
Belgium,	12 t.	C. Hooper	
E. Indies,	4	W. Hutchinson & Co.	
U. States,	13	W. Balchin	
Belgium,	13	Leach & Co.	
Natal,	34	"	
"	88	A. & W. Neslitt	
"	23	Flack, Chandler, & Co.	
"	2	Devitt & Hett	
Turmeric			
E. Indies,	500 pkgs.	Ralli Bros.	
Valonia			
A. Turkey,	6 t.	W. Pope & Co.	
Farina—			
Holland,	300 pkgs.	J. Barber & Co.	
"	50	H. Lorenz	
"	100	G. Horne	
"	100	C. Tennants, Sons, & Co.	
"	100	J. Knill & Co.	
Germany,	50	B. & N. Wf. Co., Ltd.	
Glucose—			
Germany,	30 pkgs.	242 c. Prop. Chmbln's Wf. Prop. Sun Wf. Fellows, Morton & Co. Deering & Robottom	
Holland,	80	80	
U. States,	400	400	
"	50	300	
"	250	250	
"	1,500	1,500	
"	500	500	
"	500	500	
"	150	380	
"	350	1,409	
"	2,352	2,622	
"	900	890	
"	500	500	
Germany,	25	200	
"	51	100	
"	25	203	
Guano—			
Peru,	1,275 t.	Anglo-Contl. Guano Wks.	
Lead Acetate—			
Germany,	15 cks.	F. Boehm	
"	20 pkgs.	G. Boor & Co.	
Litharge—			
Germany,	3 cks.	H. Lambert	
Magnesium—			
Germany,	1 pkge.	Phillips & Graves	
Manganese—			
Japan,	150 t.	Fellows, Morton, & Co., Ltd.	
Manure—			
Germany,	50 t.	Odam's Cheml. Manure Co.	
China,	10	W. H. Mitchell	
U. States,	10	A. R. Davis & Sons	
"	16	Soundy & Sons	
Germany,	10	F. W. Berk & Co., Ltd.	
France,	60	J. Burnett & Sons	
Mica—			
E. Indies,	£280	W. M. Smith & Sons	
Ochre—			
France,	130 cks.	W. Harrison & Co.	
Belgium,	1 cs.	Leach & Co.	
Holland,	3	14 pkgs. Phillips & Graves	
Spain,	10 sks.	Wilkinson,	
Cartagena,	93 brls.	Heywood & Co. W. Pope & Co.	
Phosphate Rock—			
Belgium,	154 t.	Walker, Howard & Co.	
France,	150	A. Hunter & Co.	
"	190	Anglo-Contl. Guano Wks.	
W. Indies,	1,250	London Phos. Syndicate, Ltd.	
Plumbago—			
Germany,	108 cs.	Prop. Scott's Wf. Prop. Hay's Wf.	
"	44 cks.	"	
"	11 pkgs.	T. H. Lee	
Holland,	21 cks.	B. Galloway	
Ceylon,	366 brls.	J. Thredder, Son, & Co.	
Potash—			
Canada,	43 brls.	S. Ward & Co.	
"	265 c.	Charles & Fox	
France,	300	"	
Potassium Bicarbonate—			
Holland,	60 c.	A. & M. Zimmermann	
Potassium Carbonate—			
Germany,	48 c.	Spies Bros., & Co.	
France,	300	Charles & Fox	
Germany,	106	F. Boehm	
Canada,	60	J. Barber & Co.	
Potassium Cyanide—			
Queensland,	40 pkgs.	L. & I. D. Jt. Co.	
Potassium Permanganate—			
Germany,	30 pkgs.	L. & I. D. Jt. Co.	
Potassium Prussiate—			
Belgium,	6 pkgs.	Magee, Taylor, & Co.	
Pumice Stone—			
Italy,	11 t.	O'Hara & Hoar	
"	6½	Blundell, Spence & Co.	
"	3	G. S. N. Co.	
"	3	H. A. Litchfield & Co.	
Pyrites—			
Spain,	350 t.	F. C. Hills & Co.	
"	2,912	C. Tennant, Sons, & Co.	
Quicksilver—			
Italy,	100 flks.	H. Bath & Son	
Rosin—			
U. States,	250 brls.	G. Nutter & Co.	
Saltpetre—			
Germany,	221 cks.	P. Hecker & Co.	
Holland,	85 bgs.	J. Greig	
E. Indies,	704 bgs.	Ralli Bros	
Salts of Sorrell—			
Belgium,	25 pkgs.	T. Palmer	
Sodium Acetate—			
France,	30 pkgs.	S. F. Waters & Co.	
Germany,	7	B. & F. Wf. Co., Ltd.	
Starch—			
Holland,	820 pkgs.	C. J. Capes & Co.	
"	11	Phillips & Graves	
"	148	Magee, Taylor, & Co.	
"	200	Sawer, Sons & Co.	
Belgium,	40	"	
"	60	Leach & Co.	
"	65	T. H. Lee	
"	65	Barrett, Tagant & Co.	
Germany,	2,720	Horne & Co.	
Stearine—			
Belgium,	37 bgs.	H. Hill & Sons	
Holland,	62	"	
Tar—			
N. Russia,	32 brls.	M. D. Co.	
Germany,	200	C. B. Leighton	
Tartaric Acid—			
Holland,	5 pkgs.	F. C. Devon & Co.	
"	3	B. & F. Wf. Co., Ltd.	
"	4	J. Owen	
Tin Salts—			
Germany,	4 pkgs.	H. Lambert	
Toluidine—			
Holland,	7 pkgs.	J. Owen	
Turpentine—			
Savannah,	1,820 brls.	Prod. Brokers' Co., Ltd.	
"	3,001 brls.	Nickoll & Knight	
Ultramarine—			
Germany,	44 pkgs.	J. Kitchen, Ltd.	
Holland,	7	20 cks. Henu,	
"	"	Peron, & Co.	
Belgium,	28 brls.	Leach & Co.	
"	20	H. Kohnstamm	
"	4	Spies Bros., & Co.	

Yarnish—		
U. States,	11 pkgs.	Taylor Bros
"	4	Randall Bros.
Belgium,	1	Stobbs, Wilson, & Co.
Germany,	6	Drolenau & Bremner
Vermillion—		
Germany,	1 cs.	A. G. Soutter & Co.
White Lead—		
Germany,	1 ck.	H. Lambert
Holland,	71 brls.	W. Balchin
"	18	Burrell & Co.
"	50	T. & W. Farmiloe
Belgium,	9	Leach & Co.
"	16	O'Hara, Matthews & Co.

Zinc Oxide—		
Belgium,	29 cks.	Beresford & Co.
Holland,	50	Burrell & Co.
"	63 brls.	M. Ashby, Ltd.

LIVERPOOL.

Week ending November 30th.

Alumina Sulphate—		
Rotterdam,	10 cks.	
Barytes—		
Antwerp,	44 cks. 50 bgs.	
Rotterdam,	18	
Boracic Acid—		
Leghorn,	25 cks.	
Borax—		
Leghorn,	10 cs.	A. & S.
Valparaiso,	126 sks	Henry & Co.
"	650	
Castor Oil—		
Antwerp,	60 brls.	J. T. Fletcher & Co.
Chemicals (otherwise undescribed)		
Antwerp,	3 cs.	
Chrome Ore—		
Baltimore,	20 cks	P. R. M'Quie & Son
Colours—		
Antwerp,	10 cs. 2 cks.	J. T. Fletcher & Co.
"	7 brls	
Ghent,	11	J. T. Fletcher & Co.
Rotterdam,	6	2 cks. 2 bxs.
Cottonseed Oil—		
New York,	5 brls.	M. Bell
Cream of Tartar—		
Bordeaux,	1 ck	
Rotterdam,	4	
Barcelona,	12	
Dyestuffs—		
Argols		
Bordeaux,	54 cks.	
Cochineal		
Gr. Canary,	17 bgs.	Sperling & Williams
"	11	Widow, Duranty & Son
Las Palmas,	15 sks.	Edward Bros.
Extracts		
Antwerp,	2 brls.	
Baltimore,	5	Houston & Laurisch
"	50	Mucklow & Co.
Bordeaux,	325 cks.	
Fustic		
Vera Cruz,	4,541 lbs	
Tampico,	3,777 ps.	
Savanilla,	1,623 lbs.	
Logwood		
Belize,	145 t.	
Havre,	50	Cunard S. S. Co., Ltd.
Madder		
Smyrna,	13 brls.	
Myrabolams		
Bombay,	2,053 bgs.	D. Sassoon & Co.
"	1,954	
Orchella		
Valparaiso,	100 brls.	Septimus Cooban
"	32	
Shumac		
Palermo,	50 bgs	J. Glynn & Son
"	100	J. Kitchin, Ltd.
Valonia		
Smyrna,	846 bgs. 100 klds.	
"	1,040 kils.	Barry Bros.
Dyestuffs (otherwise undescribed)		
New York,	250 bxs.	T. Atkin & Co.
"	4 brls.	

Farina—		
Stettin,	930 bgs	Browne, Geveke & Co.
Antwerp,	10 cs.	J. T. Fletcher & Co.
Glucose—		
Stettin,	200 cks.	Browne, Geveke & Co.
Baltimore,	99 brls.	
New York,	900	
Guano—		
Lobos de Tierra,	1,432 t.	Peruvian Corporation
Iodine—		
Valparaiso,	41 brls.	W. & J. Lockett
"	14	
Lead Acetate—		
Rotterdam,	30 cks.	
Limestone—		
Antwerp,	3 crts. 5 pkgs.	
Manganese—		
Valparaiso,	620 t.	Balfour, Williamson & Co.

Ochre—		
Pt. Royal,	137 brls.	
Bordeaux,	30 cks.	
Paint—		
Carthage,	2 kgs.	S. Wriget
Boston,	10 cs.	S. Brukiwich & Co.
New York,	15	W. M. Turner & Co.
Philadelphia,	5 pkgs	Manlove, Allcott & Co.
Hamburg,	9 dms.	
Paraffin Scale—		
New York,	396 brls	Anglo American Oil Co.
Baltimore,	200	
Phosphates—		
Ghent,	1,000 bgs.	J. T. Fletcher & Co.
"	1,500	
Brunswick, Ga,	1,548 t.	

Pitch—		
Bordeaux,	30 cks.	
Amsterdam,	26	
Antwerp,	18 cks.	J. T. Fletcher & Co.
Potash—		
Montreal,	30 brls.	
Hamburg,	32 cks.	
Potassium Prussiate—		
Rotterdam,	6 cks.	
Pumice Stone—		
Leghorn,	30 crts.	
Pyrites—		
Huelva,	3,055 t.	Matheson & Co.
Saltpetre—		
Hamburg,	190 kgs. 1 ck.	
Soap—		
Norfolk, Va.,	340 brls.	
New York,	1 cs.	Burrough & Welcome
Leghorn,	250 bxs.	Weaver & Sterry
Naples,	15 cs.	P. Behrends
Boston,	1	C. Cooper
Sodium Nitrate—		
Pisagua,	526 bgs.	M. P. Grace & Co.
Caleta Buena,	1,924	
Starch—		
Antwerp,	351 cs.	J. T. Fletcher & Co.
Boston,	800 sks.	
Rotterdam,	129 cs.	
New York,	799 sks.	
Hamburg,	90 cs.	
Stearine—		
Antwerp,	5 bgs.	J. T. Fletcher & Co.
"	82	
Baltimore,	125 sks.	H. Hill & Son
Sulphur—		
Catania,	60 bgs. 75 t.	33 brls.
Tallow—		
New York,	100 tcs.	
Boston,	74	
"	55	G. H. Hammond & Co., Ltd.
Baltimore,	185	
Philadelphia,	80	

Tartar—		
Bordeaux,	3 cks.	
Tartaric Acid—		
Rotterdam,	6 cks.	
Tin Oxalate—		
Rotterdam,	6 brls.	

Ultramarine—		
Bremen,	18 cks.	
Waste Salt—		
Hamburg,	1,566 bgs. 50 t.	
White Lead—		
Antwerp,	19 cks.	
Rotterdam,	33	
Wood Spirit—		
Hamburg,	4 dms.	
Zinc Ashes—		
Antwerp,	16 cks.	J. T. Fletcher & Co.
Zinc Oxide—		
Antwerp,	95 brls.	
"	30	J. T. Fletcher & Co.
Zinc Skimmings—		
Baltimore,	59 brls.	
New York,	360	
Zinc White—		
Antwerp,	25 brls.	
Amsterdam,	4 cks.	

HULL.

Week ending December 2nd.

Acetic Acid—		
Rotterdam,	26 balns.	Hutchinson & Son
"	12 cbs.	Lofthouse & Saltmer
Acid—		
Bari,	2 cs.	16 cks. Wilson, Sons, & Co., Ltd.
Copenhagen,	1 cs.	"
Alum—		
Rotterdam,	35 cks	W. & C. L. Ringrose
Barytes—		
Antwerp,	71 cks.	
Rotterdam,	115	Blundell, Spence, & Co.
"	22	Hanger, Watson & Harris
Camphor—		
Hamburg,	5 cks.	Wilson, Sons, & Co., Ltd.
Castor Oil—		
Trieste,	10 cs	Wilson, Sons, & Co., Ltd.
Venice,	2 brls.	"
Chemicals (otherwise undescribed)		
Antwerp,	35 pkgs.	Wilson, Sons, & Co., Ltd.
Dunkirk,	101	"
Rouen,	20 dms	"
"	3 cks.	Rawson & Robinson
Cologne,	15 cs.	J. Good & Sons
Bremen,	1 ck.	J. Pyefinch & Co.
Colours—		
Antwerp,	8 cks.	Wilson, Sons, & Co., Ltd.
Flushing,	8	
"	5	15 pkgs. G. Lawson & Sons
"	6 cs. 9	Brasch & Rothenstein
Rotterdam,	1	48 pkgs. W. & C. L. Ringrose
"	13	G. Lawson & Sons
Amsterdam,	5	W. & C. L. Ringrose
Flushing,	9	Hutchinson & Son
Rotterdam,	4 cs. 22	"
Bremen,	5	Veltmann & Co.
Cottonseed Oil—		
New York,	1,005 brls.	Wilson, Sons, & Co., Ltd.
"	10 pkgs.	
Cream of Tartar—		
Rotterdam,	2 cks.	Hutchinson & Son
Dextrine—		
Stettin,	100 bgs.	Wilson, Sons, & Co., Ltd.
"	100	
Hamburg,	50	Wilson, Sons, & Co., Ltd.
Dyestuffs—		
Alizarine		
Rotterdam,	1 cs. 9 cks. 17 pkgs.	W. & C. L. Ringrose
"	9 brls.	G. Lawson & Sons

Fustic		
Hamburg,	246 bgs.	Wilson, Sons, & Co., Ltd.
Logwood		
Hamburg,	80 bgs.	Wilson, Sons, & Co., Ltd.
Madder		
Rotterdam,	2 cks	W. & C. L. Ringrose
Amsterdam,	1	"
Shumac		
Trieste,	150 bls.	Wilson, Sons, & Co., Ltd.
Palermo,	580 bgs. 800	"
Farina—		
Stettin,	340 bgs.	Wilson, Sons, & Co., Ltd.
"	500	
Harlingen,	620	
Glucose—		
Stettin,	1,600 bgs.	
New York,	25 brls.	
Iron Oxide—		
Trieste,	27 cks.	
Kaolin—		
Rotterdam,	20 cks. 261 bgs.	Reckitt & Sons
Lime—		
New York,	457 bgs.	Wilson, Sons, & Co., Ltd.
Limestone—		
Antwerp,	2 cs.	Wilson, Sons, & Co., Ltd.
Manganese—		
Cologne,	1 ck.	
Ochre—		
Rouen,	22 cks.	Rawson & Robinson
Paint—		
Christiania,	60 dms.	Wilson, Sons, & Co., Ltd.
Plumbago—		
Cologne,	26 cks.	G. Lawson & Sons
Hamburg,	9	Bailey & Leatham
"	5	C. E. Johnson & Co.
"	6	Todd & Son
"	17	G. Buckton & Son
"	22	F. B. Grotian & Co.
Potash—		
Antwerp,	50 cks.	Bailey & Leatham
Soap—		
Bari,	61 cs.	Wilson, Sons, & Co., Ltd.
Rotterdam,	13 pkgs.	Hutchinson & Son
Starch—		
Bremen,	2,264 cs.	Veltmann & Co.
Stearine—		
Antwerp,	12 bgs.	Wilson, Sons, & Co., Ltd.
Sulphur—		
Catania,	2,280 pkgs.	Wilson, Sons, & Co., Ltd.
"	267 pkgs.	
Tallow—		
New York,	150 tcs.	Wilson, Sons, & Co., Ltd.
Tar—		
Uleaborg,	1,225 brls. 400 hf. brls.	J. Good & Sons
Tartaric Acid—		
Rotterdam,	16 cks.	Hutchinson & Son
Turpentine—		
Hamburg,	1 brl.	Wilson, Sons, & Co., Ltd.
Ultramarine—		
Cologne,	4 cks.	Sissons Bros. & Co.
Rotterdam,	18 pkgs.	"
"	20 cs.	Hutchinson & Son
Hamburg,	2 cks.	"
Rotterdam,	2	Sissons Bros. & Co.
Waste Salt—		
Hamburg,	a qty.	G. Hardy & Co.
"	508 bgs.	Furley & Co.
White Lead—		
Cologne,	81 cks.	
Rotterdam,	27	Tudor & Sons
"	20	

Zinc Oxide—
Rotterdam, 50 brls. Hutchinson & Son

Zinc White—
Cologne, 25 cks.

GLASGOW.

Week ending December 7th.

Barium Sulphate—
Antwerp, 751 bgs. 94 cks.

Barytes—
Rotterdam, 37 cks. J. Rankine & Son

Castor Oil—
Antwerp, 85 cks.

Colours—
Rotterdam, 1 cs. 2 cks. J. Rankine & Son

Dyestuffs—
Alizarine
Rotterdam, 243 cks. 2 cs. 156 pkgs.

Extracts—
Antwerp, 7 cks.

Logwood—
Rouen, 12 brls.

Madder—
M. Christi, 823 t. W. Connal & Co.

Rotterdam, 5 cks. J. Rankine & Son

Glucose—
New York, 1,650 brls.

Ochre—
Rouen, 11 cks.

Paint—
New York, 2 brls.

Phosphate—
Ghent, 1,000 bgs.

Potashes—
Antwerp, 750

Montreal, 12 brls.

Rotterdam, 51 cks. J. Rankine & Son

Montreal, 10 brls. Poynter, Son & M'Donald

Soap—
New York, 95 brls.

Sodium Acetate—
Rouen, 26 cks.

Stearine—
Antwerp, 63 bgs.

Tallow—
New York, 50 hhds.

Boston, 25 81 brls.

Tartar—
Bordeaux, 17 cks.

Varnish—
New York, 16 brls. 1 cs.

Waste Salt—
Hamburg, 356 t.

Harburg, 250

White Lead—
Antwerp, 43 cks.

Rotterdam, 75 J. Rankine & Son

Zinc Oxide—
Antwerp, 50 cks.

Rotterdam, 50 J. Rankine & Son

Zinc White—
Rotterdam, 100 cks. J. Rankine & Son

TYNE.

Week ending December 2nd.

Alum Earth—
Hamburg, 52 cks. Tyne S. S. Co.

Barytes—
Antwerp, 70 cks. Tyne S. S. Co.

Colours—
Antwerp, 4 cks. Tyne S. S. Co.

Saltpetre—
Hamburg, 3 cks. Tyne S. S. Co.

Stearine—
Antwerp, 12 bgs. Tyne S. S. Co.

Sulphur—
La Laja, 890 t. Bede Metal Co.

Ultramarine—
Hamburg, 4 cks. Tyne S. S. Co.

Varnish—
Antwerp, 3 brls. Tyne S. S. Co.

Zinc Oxide—
Rotterdam, 45 cks. Tyne S. S. Co.

GOOLE.

Week ending November 29th.

Alkali—
Hamburg, 15 cks.

Antimony—
Boulogne, 3 cks. 2 pkgs.

Caoutchouc—
Boulogne, 16 cks.

Copper Ore—
Seville, 500 t.

Dyestuffs—
Alizarine
Rotterdam, 200 pkgs.

Madder—
Rotterdam, 6 cks.

Dyestuffs (otherwise undescribed)
Boulogne, 4 pkgs. 14 cks. 3 cs.

Farina—
Hamburg, 2,200 bgs.

Delfsyzhl, 2,450

Phosphate—
Ghent, 75 t.

Potash—
Rotterdam, 30 cks.

Calais, 50 dms.

Potassium Sulphate—
Antwerp, 30 dms

Saltpetre—
Rotterdam, 100 bgs.

Hamburg, 2 cks. 40 kgs.

Waste Salt—
Hamburg, 200 t.

Zinc Oxide—
Antwerp, 25 brls

GRIMSBY.

Week ending December 2nd.

Albumen—
Dieppe, 30 cs.

Caoutchouc—
Hamburg, 5 cs.

Dieppe, 8 bls

Chemicals (otherwise undescribed)
Hamburg, 9 pkgs. 10 cs.

Farina—
Dieppe, 170 bgs.

Size—
Hamburg, 40 bgs.

EXPORTS OF CHEMICAL PRODUCTS

OF

THE PRINCIPAL PORTS OF THE UNITED KINGDOM.**LONDON.**

Week ending December 6th.

Alkali—
Sydney, 1 t. 11 c. £36

Melbourne, 2 4 38

Alum Cake—
Calcutta, 50 t. £175

Ammonia (Liquid)—
Bombay, 15 cs. £70

Cape Town, 8 pkgs. 19

Ammonia Salts—
Yokohama, 10 c. £19

Ammonium Bromide—
Melbourne, 1 ck. £6

Ammonium Carbonate—
Bordeaux, 1 t. 4 c. £40

Algoa Bay, 3 cs. 18

Dunkirk, 111 pkgs. 30

New York, 4 595

Hongkong, 4 7

Ammonium Chloride—
Cape Town, 1 ck. £6

Bagdad, 1 t. 37

Madrid, 5 21

Alexandretta, 1 36

Messina, 7 c. 12

Bourgas, 9 15

Ammonium Sulphate—
Valencia, 2 t. £30

Ghent, 70 910

Rotterdam, 50 650

Jamaica, 3 5 c. 42

Havre, 10 130

Demerara, 18 222

Hamburg, 326 4,071

Arsenic—
Napier, 1 t. £18

Yokohama, 1 15

Bleaching Powder—
Algoa Bay, 2 t. 11 c. £23

Boracic Acid—
Wellington, 5 c. £9

Borax—
Rotterdam, 3 cs. £68

Carbolic Acid—
Barcelona, 18 cs. £61

Yokohama, 7 t. 50 cks. 430

Rotterdam, 24 87

Carbon Bisulphide—
Boston, 6 t. 5 c. £82

Caustic Potash—
Wellington, 1 t. £21

Caustic Soda—
Auckland, 6 t. 13 c. £75

Hong Kong, 2 26

Natal, 1 15 57

Adelaide, 10 8

Melbourne, 20 2 213

Chemicals (otherwise undescribed)—
Shanghai, 2 cs. £130

Melbourne, 5 pkgs. 26

Auckland, 100 cs. 5 kgs. 273

Citric Acid—
Stettin, 4 c. £32

Danzig, 3 28

Hamburg, 1 kg. 10 93

Sydney, 5 40

Rangoon, 1 cs. 9

Antwerp, 1 t. 168

Rotterdam, 5 40

Santander, 5 43

Libau, 10 cks 10 475

Yokohama, 18 142

Shanghai, 2 20

Riga, 2 13

Coal Products—
Allizarine

Moscow, 17 cs. £460

Aniline Dyes—
New York, 76 pkgs. £360

Benzol—
Rotterdam, 88 cks. £520

Hamburg, 30 pns. 255

Naphthalene—
New York, 57 bgs. £10

Libau, 5 cks. 34

Hamburg, 12 94

Treport, 1 8

Pitch—
New York, 556 cks. £292

Dunkirk, 150 t. 225

Gothenburg, 100 51

Auckland, 9 pkgs. 5

Mauritius, 26 11

Boston, 430 bgs. 138

Leghorn, 2,000 2,850

Sables d'Olonne, 1,126 t. 1,599

Pyridine Bases—
Hamburg, 7 dms. £135

Tar—
Durban, 20 runs. £12

Mauritius, 5 45 pkgs. 32

Wellington, 25 dms. 5

Tar Oil—
Wellington, 40 dms. £13

Toluol—
Hamburg, 10 pns. £113

Copperas—
Casa Blanca, 5 t. 12 c. £15

Copper Sulphate—
Adelaide, 15 t. £231

Riga, 10 1 c. 157

Naples, 5 10 85

Bangkok, 10 157

Constantinople, 11 9

Cream of Tartar—
Adelaide, 5 t. 3 c. £394

Auckland, 1 3 85

Sydney, 1 3 72

Calcutta, 5 19

Melbourne, 6 432

Wellington, 11 45

Yokohama, 5 19

Disinfectants—
Wellington, 7 cs. 8 c. £21

Singapore, 100 dms. 35

Shanghai, 4 pkgs. 20

Melbourne, 6 36

Jamaica, 11 22

Calcutta, 60 77

Auckland, 10 18

Flowers of Sulphur—
Pt. Elizabeth, 1 t. 10 c. £13

Guano—
Jersey, 100 t. £800

Demerara, 28 280

Guadeloupe, 440 5,060

Manure—
Auckland, 1 t. 9 c. £17

Valencia, 5 50

Trinidad, 35 300

Jamaica, 24 12 140

Guernsey, 10 42

Barbadoes, 10 26

Treport, 39 12 240

Nitric Acid—
Jersey, 14 cbys. £53

Oxalic Acid—
Yokohama, 1 t. 10 c. £43

Phosphoric Acid—
Boulogne, 6 c. £25

Phosphorus—
Wellington, 5 cs. £53

Blenheim, 5 45

Adelaide, 5 50

Potash Crystals—
Toronto, 13 c. £52

Potassium Bicarbonate—
New York, 5 kgs. £8

Potassium Bromide—
Melbourne, 1 c. £10

Potassium Carbonate—
Santander, 11 c. £12

Potassium Chlorate—
Bombay, 2 cs. £16

Hamburg, 10 c. 35

Potassium Cyanide—
Boulogne, 6 c. £56

Madras, 2 13

Potassium Permanganate—
Melbourne, 5 c. £15

Potassium Sulphate—
Jamaica, 3 t. 3 c. £30

Saltpetre—
Rotterdam, 1 t. £22

Savannah, 4 10 c. 99

Gothenburg, 1 21

Cape Town, 18 19

Canterbury, 1 23

New York, 13 15 292

Wellington, 10 11

Rio Grande do Sul, 1 14 38

Sheep Dip—
Auckland, 100 cs. £300

Wellington, 170 510

Falklands, 5 t. 200

Natal, 500 dms. 101

Soda Ash—
Sydney, 51 t. £236

Soda Crystals—
Shanghai, 1 t. 14 c. £10

Cape Town, 1 4

Sodium Bicarbonate—
Cape Town, 10 c. £4

Napier, 1 t. 10 9

Algoa Bay, 10 9

Auckland, 1 10 12

Sodium Silicate—
Lytleton, 5 t. 1 c. £25

Sodium Sulphate—
Ghent, 70 t. £100

Sodium Tartrate—
Melbourne, 7 c. £16

Sulphur—
Wellington, 10 c. £6

Sulphuric Acid—

Singapore,	1 t.	5 c.	£13
Cape Town,	1	10	14
Hamburg,	1	5	8

Superphosphate—

Jersey,	34 t.		£100
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Tartaric Acid—

Melbourne,	5 c.	£24
Adelaide,	2 t.	198
Reval,	20 kgs.	100
Sydney,	1	95
Melbourne,	2	10
Karachi,	10	54
Auckland,	3	15
Vokohama,	3	14

LIVERPOOL.

Week ending December 6th.

Acetic Acid—

Bombay,	1 c.	3 q.	£9
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Albumen—

Rotterdam,	6 c.	2 q.	£20
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Alum—

Beyrout,	3 t.	10 c.	£21
Sydney,	1		7
Genoa,	3	9	16
Syria,	15		5
Cape Town,	1		6
Colombo,	3	9	21

Aluminous Cake—

Calcutta,	26 t.	2 c.	3 q.	£95
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Ammonium Carbonate—

Hamburg,	1 t.	6 c.	£51
N. Orleans,	1		40
Genoa,	1	5	42
Venice,	1	5	42
Leghorn,	10		17
Stockholm,		7 kgs.	60
Antwerp,	1		34

Ammonium Chloride—

Antwerp,	5 c.	£8	
Aleppo,	5	9	
Leghorn,	6	10	
Alexandretta,	1 t.	5	35
Palermo,	1	1	33
Naples,	10	1 q.	17
Alexandria,	2	5	80
Beyrout,	10		17
Samsoun,	6		10

Ammonium Sulphate—

New York,	50 t.	9 c.	1 q.	£750
Barcelona,	10	3		134
Alicante,	10	6	3	126
Valencia,	178	19	1	2,282
Rotterdam,	102	14		1,374
Antwerp,	149	11	3	2,107
Genoa,	10			139

Asbestos—

B. Ayres,	3 cs.		
Pernambuco,		2 bls.	
Iquique,	2		

Barium Chlorate—

Hamburg,	17 c.	£72
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Barytes—

Hamburg,	14 brls.		
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Bleaching Powder—

Baltimore,	139 cks.		
Boston,	598		
Calcutta,		290 cs.	
Genoa,	38		
Havana,		9	
Lisbon,	5		
Malaga,	4		
New York,	434		
Venice,		1	
Alexandria,		20 brls.	
Rouen,	15		
Vera Cruz,		50	

Boracic Acid—

New York,	2 t.	3 c.	2 q.	£72
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Borax—

Malta,		6 c.	3 q.	£10
Hamburg,	1 t.	7		40
Rotterdam,	2			65
Batavia,		1	1	15
Stockholm,	1	10		33
Adelaide,	2	9		72
Antwerp,	6	8	2	187

Calcium Chloride—

New York,	20 t.	2 c.	£51
Baltimore,	12	6	30

Carbolic Acid—

Dunkirk,	4 t.	19 c.	2 q.	£27
Rotterdam,	5			300

Castor Oil—

Lisbon,	30 cs.		
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Caustic Potash—

New York,	17 t.	18 c.	£434
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Caustic Soda—

Bahia,	80 dms.		
Baltimore,		50 brls.	
Barcelona,	31		
Boston,	25		
Callao,	20		
Genoa,	32		
Hamburg,	20	4	
Havana,	90		
Messina,	126		
New York,	10 cs.	120	155 30 bxs.
Oporto,	30		
Pecalangan,	40		
Pernambuco,	100		
Valencia,	30		
Vera Cruz,	100		
Adelaide,	60		
Bordeaux,	34		
Bremen,			
Iquique,			125 kgs.
Malaga,	12		
Vera Cruz,	52		

Chemicals (otherwise undescribed)

Algoa Bay,	10 t.	£67
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China Clay—

Bombay,	6 t.	25 cks.	
Boston,	752 t.		
New York,	50		
Calcutta,	20		

Chrome Ore—

Dunkirk,	5 t.	3 c.	3 q.	£60
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Chromium Oxide—

Dunkirk,	1 c.	3 q.	£16
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Coal Products—

Alizarine			
Lisbon,	2 cks.		
Aniline Colours			
New York,	11 cks.	2 cs.	
Aniline Salts			
Lisbon,	1 cs.		
Pitch			
Genoa,	5 cks.		
Port de Bonc,	1,198 t.	6 c.	
Penang,	3 cks.		
Tar			
Callao,	20 dms.		
Hamburg,	25 cks.		
Sierra Leone,	10 hf. brls.	10 brls.	

Copperas—

Calcutta,	14 t.	9 c.	£18
Almeria,	32		67
Karachi,	30		50
Oporto,	4	2	8
Valparaiso,	4	9	10
San Francisco,	16	10	24

Copper Sulphate—

Lisbon,	7 t.	9 c.	1 q.	£120
Adelaide,	5			80
Melbourne,	10			160
Fremantle,	2			35
Norroping,	1	2	2	17
Venice,	9	6	2	139
Ancona,	17	14	2	263
Genoa,	6		2	90
Constantinople,	1	5		19
Algiers,	9	19	1	160
Rouen,	5			79

Disinfectants—

Bombay,	2 t.	18 c.	2 q.	£20
Hamburg,	9	12		101
Calcutta,		15		20

Gypsum—

New York,	26 t.	3 c.	£133
Hamburg,	5	3	19

Iron Chromate—

Dunkirk,	12 c.	1 q.	£7
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Iron Oxide—

Dunkirk,	1 t.	1 c.	£26
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Iron Sulphate—

Calden,	8 t.	10 c.	2 q.	£45
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Lime—

Frederikstad,	20 cks.		
Lagos,	10		

Magnesia—

Pernambuco,	2 cs.		
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Magnesium Carbonate—

Guadalajara,	14 c.	£24
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Magnesium Chloride—

Bombay,	4 t.	10 c.	£15
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Magnesium Sulphate—

Bombay,	100 kgs.	£25
"	60 bgs.	
Alexandria,	50 kgs.	

Manure—

Madeira,	3 t.	6 c.	£34
Valencia,	126	4	330

Mineral White—

Vera Cruz,	30 cks.		
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Oxalic Acid—

Barcelona,	5 t.	£137
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Paint—

Alexandria,	320 kgs.		
Bathurst,	51		
Cienfuegos,	4 cks.		
Gr. Canary,	50		
Monrovia,		98 pkgs.	
M. Video, 36 cs.	28		
Talcahuano,	18		
Antigua,	100		
Bombay,	8		
B. Ayres,	14		
Calcutta,		180	
Callao,	20		
Constantinople,			1 brl.
Curacao,		36	
Malta,		16	
Manos,	11		2 tcs.
Matanzas,	2		
Mollendo,	7		
Panama,	5		
Sagua la Grande,	2		
San Juan,	4	122	

Painters' Colours—

Acajutla,	9 brls.		
Antwerp,	29 kgs.		
Bahia,	50		
Baltimore,		134 cks.	
Beyrout,	25	2	
Bordeaux,			1 bx.
B. Ayres,	121		250 tins.
Havana,	6		11 tcs.
Para,	16	20	7 pkgs.
Salaora,	3	1	
San Juan,		55	
Savanilla,			3 dms.
Smyrna,	100		
Talcahuano,	136	10	5
Valparaiso,		14	
Adelaide,		8	
Alexandria,		115	
Bilbao,		41	
Boston,			
Carthagena, N.G.,	2		5 crts.
Kingston, Ja.,	10 brls.		3 cs.
Leghorn,		10	
Lisbon,		22	
Maceio,	4 brls.		11 pkgs.
Manila,		24	
Menado,		6	
Penang,		7	
Pt. Natal,	24 kgs.	3	
Rangoon,	26	3	
Rotterdam,			4
Sagua la Grande,		1	
Sierra Leone,	17		

Paraffin Wax—

Bari,	50 bgs.		
Odessa,	10		

Phosphorus—

Trinidad,	2 cs.	£18
Tampico,	15	107
Kobe,	50	625
Havana,	4	40
Hiogo,	4 cwts.	40

Plumbago—

Para,	2 cks.		
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Potassium Bichromate—

Hiogo,	2 c.	1 q.	£5
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Potassium Carbonate—

New York,	18 t.	6 c.	£295
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Potassium Chlorate—

New York,	7	11	446
Hiogo,	10		634
Kobe,	2	10	140
Odessa,		10	33
Genoa,	1	15	108
Havana,	2		126
Boston,	1	10	88
Hiogo,	2	15	180

Salt—

Amsterdam,	228 t.	10 c.	
Belize,	145		
Boston,	25		
B. Ayres,	41		
Calcutta,	6,616		200 cs.
N. Orleans,	35		
New York,	134		
Rio de Janeiro,		11	
Rio Nunez,	125		
Rotterdam,	157		
Accra,	10		
Algoa Bay,	5		
Antwerp,	376		
Cameroons,	15		
Chicago,	50		
Conakry,	35		
Copenhagen,	97		
Dubreaka,	100		
E. London,	8	19	
Galveston,	534	10	
Ghent,	250		
Gr. Bassa,	15		

Landana,	80		
Manaos,	15		
Mandiji,	9		
Melbourne,	50		
M. Video,	2	3	
Newport News,	785		
Para,	171		
Portland, Me.,	44		
Quillon,	116		
Sierra Leone,	100		
Sydney,	25		

Saltcake—

Antwerp,	60 t.		£31
Baltimore,	150	1 c.	27

Saltpetre—

Boston,	70 brls.		
Cairo,	50		
Cape Town,	25		
Gibraltar,	70		
Jaffa,	12	1 kg.	
Malta,	71		
New York,	168	140 cks.	
Sodium Bicarbonate—			
Adelaide,	40 kgs.		
Algoa Bay,	60	70 bgs.	
Barri,	140		
Calcutta,	520		
Cape Town,	40		
E. London,	30		
Hamburg,	25	33 cks.	
Hamilton,		15	
Havre,	63 cs.		
Jaffa,	6 brls.		
Marseilles,	15		
Melbourne,	330	50	
Rangoon,	50		
Singapore,			4
Smyrna,	40		
Sydney,	120		
Trieste,	20		
Trinidad,	50		
Amsterdam,	60		
Christiania,	253	3	
Copenhagen,	150	18	
Para,	10		
Rotterdam,	20		
Tunis,	3 brls. 16		
Sodium Bichromate—			
Aleppo,	2 kgs.		
Sodium Carbonate—			
Boston,	70 brls.		
Sodium Chlorate—			
Hamburg,	10 kgs.		
Antwerp,	130		
Ghent,	10		
Rotterdam,	12		
Sodium Silicate—			
Barcelona,	50 brls.		
Sulphur—			
Parahyba,	1 t. 3 c.	£10	
Boston,	250	3	1 q. 955
Antwerp,	10		39
Ghent,	10		39
Antigua,	7	2	5
Turpentine—			
Bremerhaven,	5 brls.		
Varnish—			
Bombay,	20 dms.		
Barri,	2	1 ck. 1 cs.	
M. Video,		1	
San Jose de Guatemala,		3	
White Lead—			
B. Ayres,	15 cks.		
Zinc Chloride—			
Bahia,	1 t. 17 c.	£32	
Bombay,	5	8	3 q. 96
Zinc Sulphate—			
Lisbon,	1 t. 10 c.	3 q. £13	
Zinc White—			
Corunna,	4 brls.		

HULL.

Week ending December 2nd.

Ammonium Sulphate—			
Antwerp,	500 bgs.		
Hamburg,	782		
Aniline Salts—			
Reval,	26 cks.		
Bleaching Powder—			
Stettin,	99 cks.		
Borax—			
Gothenburg,	1 cs.		
Rotterdam,	1	50 cks.	
Caustic Soda—			
Abo,	10 dms.		
Chemicals (otherwise undescribed)			
Abo,	6 cks. 20 pks.		
Antwerp,		20 cs.	
Amsterdam,	4	16 pks.	
Bordeaux,		16 cs.	
Bergen,		5 pks. 13	
Copenhagen,	2	20 15	
Christiania,	14	322 lbs. 8	
Flushing,	1		
Gothenburg,	28	4 pks. 3	
Hamburg,		92	
Harlingen,	10		
Rotterdam,	11	111	
Riga,	2		
Reval,	45	317 20	
Rouen,	8		
Stettin,	9	111 pks.	
Cottonseed Oil—			
Bremen,	85 c.		
Flushing,	4		
Gothenburg,	100		

Hamburg,	1,259		
Konigsberg,	383		
Rotterdam,	1,403		
Stavanger,	16		
Stettin,	125		
Creosote—			
Christiania,	2 cks.		
Dyestuffs (otherwise undescribed.)			
Antwerp,	70 brls.		
Christiania,	24		
Flushing,	1	4 cks.	
Hamburg,		6	
Rotterdam,	5		
Reval,	1 cs. 85		
Stettin,	2		
Linseed Oil—			
Bordeaux,	34 c.		
Bergen,	17		
Christiania,	180		
Drontheim,	18		
Hamburg,	206		
Rotterdam,	208		
Stavanger,	138		
Ochre—			
Copenhagen,	10 cks.		
Painters' Colours—			
Antwerp,	24 cks. 1 pkge.		
Amsterdam,	18		
Bremen,	17	50	
Copenhagen,	4		1 cs.
Christiansand,		76 kgs.	
Christiania,	1		1 cs.
Dunkirk,			
Flushing,	1		
Gothenburg,	3		
Hamburg,	32	14 dms. 12 15 pks.	
New York,	35	70	
Rotterdam,	10		
Rouen,	1		
San Francisco,	10		
Stettin,	22		
Pitch—			
Antwerp,	523 t.		
Christiania,	40 cks.		
Salt—			
Calcutta,	630 t.		
Reval,	20		
Tar—			
Amsterdam,	2 cks.		
Copenhagen,	10		
Gothenburg,	150		
Varnish—			
Antwerp,	4 cs.		
Copenhagen,	1	1 can 1 ck.	
Gothenburg,		2	
Harlingen,		1	

GLASGOW.

Week ending December 7th.

Ammonium Sulphate—			
Antwerp,	94 t. 8½ c.	£940	
Nantes,	6	15¾	84
Hamburg,	180	13	2,350
Bleaching Powder—			
Calcutta,	19 t. 19 c.	£380	
Boracic Acid—			
Rouen,	10½ c.	£35. 12s.	
Borax—			
Rouen,	2 t. 19 c.	£92. 10s.	
Halifax,	2	10	£75
Nantes,	2	2¼	61
Hamburg,	2 cks.		15
Caustic Soda—			
New York,		£474	
Coal Products—			
Creosote Oil			
St. Malo,	119 t.	£265	
Philadelphia,	680	2,000	
Naphtha			
Rouen,	31 t. 5¼ c.	£570	
Pitch			
St. John's, N.F.,	18 t. 2 c.	£35	
Italy,	1,135	13	852
Chili,	38	18	52
Bombay,			£33. 15s.
Gothenburg,	12	11¼	£24
New York,	104	16	180
Amsterdam,	200		280
Valparaiso,	132	15	170
Oporto,	104	8½	160
Tar			
China,	200 rls. 300 brls.	£180. 10s.	
Bombay,		174. 10	
Tar Oil			
Hamburg,	210 cks.	£89	
Copperas—			
Bombay,	16 t. 19¼ c.	£42. 16s.	
Cottonseed Oil—			
Rotterdam,	90 brls.	£337	
Fiume,	5 t. 2 c.	117	
Crude Tar Acids—			
Boston,	21 t.	£82	

Dyestuffs (otherwise undescribed)

Calcutta,	6¼ c.	£30	
Linseed Oil—			
Chili,	2 t. 8¼ c.	£60	
Manganese—			
Antwerp,	11 t. 10 c.	£90	
Nitrate of Lead—			
Rouen,	6 t. 10½ c.	£115	
Paint—			
Chili,	14 t. 4¼ c.	£208	
Rangoon,	3	9½	50
New York,	6	5	114
Singapore,			290
Hong Kong,	3		57
Valparaiso,	6	13¼	145
Painters' Colours—			
Mauritius,	3 t. 16½ c.	£45	
Rangoon,		71	
Hong Kong,	6	¾	109
Paraffin Wax—			
Rouen,	1 t. 9¼ c.	£39	
Nantes,	2	10¼	65
Fiume,	7	5	200
Hamburg,	56 bgs. 14 cs.	178	
Potassium Bichromate—			
Rouen,	30 t. 15¼ c.	£1,198	
Rotterdam,	2 cks.	40	
Antwerp,	9 t. 18¼ c.	393	
Nantes,	4	18	192
Potassium Prussiate—			
Rouen,	16 c.	£48	
Rosin Oil—			
Rotterdam,	15 brls.	£30	
Salt—			
Valparaiso,	5 t. 2¾ c.	£45	
Soda Ash—			
Philadelphia,	136 t. 1 c.	£408	
Soda Salts—			
Christiania,	6 c.	£10	
Sodium Bichromate—			
Rouen,	54 t. 17½ c.	£1,666	
Nantes,	5	2½	160
Sulphuric Acid—			
China,	47 cs.	£41	
Tallow—			
Rotterdam,	17 t. 18 c.	£766	
Amsterdam,	1	1	35
White Lead—			
Calcutta,	3 t.	£39	

TYNE.

Week ending December 2nd.

Alkali—			
Christiania,	56 t. 18 c.		
Gothenburg,	5	9	
Riga,	48	14	
Ammonium Carbonate—			
Odessa,	3 t. 6 c.		
Ammonium Sulphate—			
Antwerp,	25 t.		
Valencia,	9	16 c.	
Antimony—			
Antwerp,	1 t.		
Hamburg,	1		
Rotterdam,	12		
Copenhagen,		6 c.	
Odessa,	4	5	
Arsenic—			
Reval,	10 t. 12 c.		
Asbestos—			
Bergen,	26 lbs.		
Barium Carbonate—			
Antwerp,	10 t. 7 c.		
Hamburg,	100		
Riga,	24	6	
Odessa,	6		
Rouen,	15		
Bleaching Powder—			
Antwerp,	20 t. 1 c.		
Hamburg,	20	2	
Christiania,	30	6	
Bilbao,	5	11	
Rotterdam,	23	9	
Bergen,	5	13	
Drontheim,	10		
Riga,	15	5	
Copenhagen,		11	
Libau,	25	5	
Genoa,	20	9	
Rouen,	2	12	
Boracic Acid—			
Reval,	10 c.		
Calcined Magnesia—			
Genoa,	1 t. 16 c.		
Caustic Soda—			
Antwerp,	14 t. 5 c.		
Hamburg,	21	8	
Christiania,	4	18	
Rotterdam,	3	9	
Riga,	2	10	

Ghent,	4	18
Ancona,	4	12
Libau,	6	
Bombay,	1	6
Genoa,	143	11
Odessa,	98	14
Rouen,	24	18

Colours—

Christiansund, 2 c.

Lead Acetate—

Riga, 1 c.

Litharge—

Christiania, 16 c.

Riga, 10 t. 4

Copenhagen, 12

Magnesia—

Antwerp, 6 c.

Hamburg, 4

Reval, 5

Odessa, 1 t. 9

Magnesium Carbonate—

Rouen, 1 c.

Manganese—

Riga, 1 c.

Naphthaline—

Riga, 25 t.

Paint—

Antwerp, 11 c.

Ergasteria, 11

Rotterdam, 2

PRICES CURRENT.

WEDNESDAY, DECEMBER 13th

PREPARED BY MESSRS. HIGGINSBOTTOM AND CO., 116, PORTLAND STREET, MANCHESTER.

The values stated are F.O.R. at maker's works, or at usual ports of shipment in U.K. The price in different localities may vary.

Acids:—

	£	s.	d.
Acetic, 25% and 40%	per cwt.	7/6	& 11/3
Glacial	"	50/-	
Arsenic S.G., 2000°	"	0	14 6
Fluoric	per lb.	0	0 3 1/4
Muriatic (Tower Salts), 30° Tw.	per bottle	0	0 10
(Cylinder), 30° Tw.	"	0	3 0
Nitric 80° Tw.	per lb.	0	0 1 1/4
Nitrous	"	0	0 1 1/4
Oxalic	nett	0	0 3 1/4
Phosphoric, 1750°	"	0	1 2 1/2
Picric	"	0	1 0
Sulphuric (fuming 50%)	per ton	15	10 0
(monohydrate)	"	5	10 0
(Pyrites, 168°)	"	3	0 0
(free from arsenic, 145°)	"	1	5 0
Sulphurous (solution) S.G. 1025	"	1	6 0
Tannic (pure)	per lb.	0	1 2
Tartaric	"	0	0 11 1/2
Arsenic, white powdered	nett per ton	13	7 6
Alum (loose lump)	"	5	2 6
Alumina Sulphate (pure)	"	5	0 0
Aluminoferrous	"	2	10 0
Aluminium	per lb.	0	3 0
Ammonia, Anhydrous	"	0	1 2
" 880=28°	per lb.	0	0 3
" =24°	"	0	0 2 1/4
" Carbonate	nett	0	0 3 1/2
" Muriate	per ton	25	10 0
" (sal-ammoniac) 1st & 2nd	per cwt.	37/-	& 35/-
" Nitrate	per ton	44	0 0
" Phosphate	per lb.	0	0 10 1/2
" Sulphate (grey) London	per ton	13	15 0
(grey) Hull	"	13	17 6
Aniline Oil (pure)	per lb.	0	0 6 1/4
Aniline Salt	"	0	0 5 1/4
Antimony	per ton	45	10 0
" (tartar emetic)	per lb.	0	1 0
" (golden sulphide)	"	0	0 10
Barium Chloride	per ton	7	10 0
" Carbonate (native)	"	3	10 0
" Sulphate (native levigated)	"	45/-	to 75/-
Bleaching Powder, 35%	nett	8	0 0
" Liquor, 7%	"	3	10 0
Bisulphide of Carbon	"	11	15 0
Chromium Acetate (crystal)	per lb.	0	0 6
Calcium Chloride	per ton	2	5 0
China Clay (at Runcorn) in bulk	"	17/6	to 35/-

Coal Tar Products and Dyes:—

Alizarine (artificial) 20%	net per lb.	0	0 8
Magenta	"	0	3 9
Anthracene, 30% A, f.o.b. London	per unit per cwt.	0	1 2
Benzol, 90% nominal	per gallon	0	1 6
" 50/90	"	0	1 7
Carbolic Acid (crystallised 40°)	per lb.	0	0 6 1/4
(crude 60°)	per gallon	0	1 7
Creosote (ordinary)	"	0	0 2 1/2
(filtered for Lucigen light)	"	0	0 3
Crude Naphtha 30% @ 120° C.	"	0	0 9
Grease Oils, 22° Tw.	per ton	2	5 0
Pitch, f.o.b. Liverpool or Garston	"	1	8 6
Solvent Naphtha, 90% at 160°	per gallon	0	1 4
" Lucigen" and "Wells" Oils	"	0	0 2 1/2
Copper	per ton	43	8 9
" Sulphate	"	16	10 0
" Oxide (copper scales)	"	40	0 0
Glycerine (crude)	"	13	0 0
(distilled S.G. 1250°)	"	43	0 0
Iodine	nett, per oz.	0	0 9
Iron Sulphate (copperas)	per ton	1	12 6
" Sulphide (antimony slag)	"	2	0 0
Lead (sheet) for cash	"	10	15 0
" Litharge Flake (ex ship)	"	13	0 0
" Acetate (white)	"	26	0 0
" brown	"	17	10 0
" Carbonate (white lead) pure	"	20	0 0
" Nitrate	"	20	0 0

Lime, Acetate (brown)	per ton	7
(grey)	"	11
Magnesium (ribbon and wire)	per oz.	0
" Chloride (ex ship)	per ton	2
" Carbonate	per cwt.	1
" Hydrate	per ton	17
" Sulphate (Epsom Salts)	per ton	2
Manganese, Sulphate	"	17
" Borate	per cwt.	2
" Ore, 70%	per ton	4
Methylated Spirit, 61° O.P.	per gallon	0
Naphtha (Wood), Solvent	"	0
" Miscible, 60° O.P.	"	0

Oils:—	
Cotton-seed	per ton 22
Linseed	" 21
Petroleum, Russian	per gallon 0
" American	" 0
Phosphorus (yellow)	per lb. 0
(red)	" 0
Potassium (metal)	per oz. 0
" Bichromate	nett per lb. 0
" Carbonate, 90% (ex ship)	per ton 16
" Chlorate	per lb. 0
" Cyanide, 98%	" 0
" Hydrate (Caustic Potash) 80/85%	per ton 21
" (Caustic Potash) 75/80%	" 20
" (Caustic Potash) 70/75%	" 20
" Nitrate (refined)	per cwt. 1
" Permanganate	per cwt. 3
" Prussiate Yellow	per lb. 0
" Sulphate, 90% (ex ship)	per ton 9
" Muriate, 80% (do.)	" 8
Silver (metal)	per oz. 0
" Nitrate	" 0
Sodium (metal)	per lb. 0
" Carb. (refined Soda-ash) 48%	nett per ton 5
" (Caustic Soda-ash) 48%	" 4
" (Carb. Soda-ash) 48%	" 4
" (Carb. Soda-ash) 55%	" 4
" (Soda Crystals)	" 3
" Acetate (ex-ship)	" 16
" Arseniate, 45%	" 11
" Chlorate	per lb. 0
" Borate (Borax)	net, per ton. 28
" Bichromate	per lb. 0
" Hydrate (77% Caustic Soda) (f.o.b.) net pr. ton	11
" (74% Caustic Soda)	10
" (70% Caustic Soda)	9
" (60% Caustic Soda)	8
" (60% Caustic Soda, cream) (f.o.b.)	8
" Bicarbonate	" 7
" Hyposulphite	" 6
" Manganate, 30%	" 16
" Nitrate (95% ex-ship Liverpool)	per cwt. 0
" Nitrite, 98%	per ton 29
" Phosphate	" 15
" Silicate (glass)	per ton 5
" (liquid, 100° Tw.)	" 4
" Stannate, 40%	per cwt. 3
" Sulphate (Salt-cake)	per ton. 1
" (Glauber's Salts)	" 1
" Sulphide	" 8
" Sulphite	" 5
Strontium Hydrate, 100%	" 3
Sulphocyanide Ammonium, 95%	per lb. 0
" Barium, 95%	" 0
" Potassium	" 0
Sulphur (Flowers)	per ton. 8
" (Roll Brimstone)	" 6
" Brimstone: Best Quality	" 4
Superphosphate of Lime (26%)	" 2
Tallow	" 28
Tin (English Ingots)	" 80
Tin Crystals	per lb. 0
Zinc (Spelter)	per ton 17
" Chloride (solution, 96° Tw.)	" 5

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Articles, reports, and correspondence on all matters of interest to the Chemical and allied industries, home and foreign, are solicited. Correspondents should condense their matter as much as possible, write on one side only of the paper, and in all cases give their names and addresses, not necessarily for publication. Sketches should be sent on separate sheets.

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THE INSTITUTE OF CHEMISTRY LABORATORY.

THE Institute of Chemistry of the past and that of to-day, as most of our readers must be aware, are two very different things.

It is now about two years since the ferment which permeated the general meetings of the Institute first clearly manifested itself as the harbinger of a new régime. The discussions which took place at the time were of a rather heated nature, but no one, we should think, who had the true interests of the Institute at heart, would venture to say that they have not on the whole been productive of good; and have been in a measure instrumental in dispersing the old apathy which characterised the proceedings of the Institute, and calling into existence the evidences of active usefulness which are at the present so apparent.

When, some twelve months ago, the suggestion was made that a well-equipped laboratory should be provided, in which the examinations for the Associateship could be held, and also at the same time to provide offices and a council-room, so as to centralise the work of the Institute, we did not hesitate to advocate the adoption of such a proposal; as thereby stability would, so to speak, be given to the pretensions of the Institute to the dignity of being the stronghold of analytical and consulting chemists, in fulfilment of the charge under its Royal Charter to protect and further the interests of such.

On the contrary, we went further, and urged the growing necessity for some such step as would wipe out the remembrance of the shortcomings that had been by the pre-eminent superiority of the conditions which would in due course present themselves. All that was to be feared at that time was that the half-heartedness which had hitherto prevailed, should be allowed to influence the changes that were about to be made to the detriment of that thoroughness of execution which was so much needed.

The completion of the Institute Chemical Laboratory has shown, however, that the Council, while avoiding too drastic a reformation, when once determined to forsake the old paths, intended to desert them entirely, and have a clean start, since an inspection of the laboratory leaves little if anything to be desired.

Well lit, well ventilated, and lined with white glazed bricks, the requisite conditions of the building for a laboratory, it will be seen, have been provided. The detailed arrangements, we are pleased to say, will stand scrutiny equally well.

The thirty-two benches are arranged in four rows, eight benches in a row, four on each side. A sink to every four students is provided, while each bench is partitioned off, affording as completed isolation as is possible, and definitely allotting a space of nearly six feet by two feet four inches to every student. The tops of the benches are specially constructed of white spruce saturated with paraffin, and fitted with an

edge of mahogany. Each bench is of course furnished with a filter-pump, and high and low-pressure water supply, two gas connections, reagent shelves, etc., and in addition to the ample draught cupboard accommodation, each bench is fitted with a small draught pipe, so that a good atmosphere is maintained—an important point to examination candidates, who usually have to work in an abnormally bad atmosphere, because of the tax upon the fume chamber resources of the laboratory, and the anxiety of the students to expedite matters, even at the expense of their lungs. The fumes are passed up a coke tower, which acts as a scrubber, and then discharged into a furnace, so that no local nuisance will be created.

The combustion furnaces are situated on a lower floor, in a room fitted with seven stone-topped tables, two of which are reserved for blow-pipe work. There are six balances in the balance room, there being an equal number of short and long beamed balances. The opening ceremony was performed by the President of the Institute, Professor Tilden, who afterwards entertained the company at luncheon.

It can only be with feelings of pleasure that the members of the Institute will learn of the successful completion of their laboratory, and, on the principle of "honour to whom honour is due," we think the Institute is much to be congratulated upon its present status, and all credit is due to Prof. Tilden for the way he has worked, and the results he has achieved during his presidency.

RECENT CUSTOMS DECISIONS.

"MARINE OIL" NOT SOAP STOCK.

IN the matter of the protests of United Oil Company against the decision of the Collector of Customs at New York as to the rate and amount of duties chargeable on certain marine oil, imported February 16, 1893; December 14, 1892; February 13, 1893; April 12, 1893; and June 22, 1893, the following is the opinion by General Appraiser Sharretts:—

The merchandise covered by these protests is a combination of rapeseed oil, cottonseed oil, low grade olive oil, and possibly some other expressed oils. This substance is prepared after a secret formula, and is imported for use in the manufacture of marine lubricating oil by blending it with a certain domestic mineral oil, the name of which the appellants refuse to divulge. Free entry was claimed for this merchandise under paragraph 599 as soap stock. The collector classified the same as rapeseed oil, and assessed duty thereon at 10 cents per gallon under paragraph 43. The testimony of a representative of the appellants shows that the merchandise is a prepared oil, having crude or blown rapeseed oil as the chief component in quantity and value. It further appears from the evidence of this witness, and we so find as a fact, that said merchandise, after it is blended with mineral oil and made into lubricating oil, saponifies upon coming into contact with water, but, in the condition in which it is imported, is not commonly used in soap making, nor for any other purposes named in paragraph 599.

Without deciding that the merchandise is dutiable as rapeseed oil, we overrule the protests, and the collector's decision stands affirmed.

CHEMICAL GLASSWARE.

In the matter of the protest of Eimer and Amend, against the decision of the Collector of Customs at New York as to the rate and amount of duties chargeable on certain chemical glassware, imported March 2, 1893, the following is the opinion by General Appraiser Sharretts:—

The goods covered by this protest are:

(1) Crystallising dishes made of very thin Bohemian glass and used for crystallising salts, chiefly in laboratories.

(2) Glass beakers or dishes with glass covers, used exclusively for growing bacilli germs therein.

(3) Glass mortars and pestles, such as are chiefly used in laboratories.

The testimony shows, and we so find as a fact, that all of the merchandise in question is commercially known as chemical glassware and is for use in laboratories. The claim of the appellants that said merchandise is dutiable at 45 per cent. *ad valorem* under paragraph 107 is sustained, and the collector's decision is reversed.

Legal Intelligence.

HIGH COURT OF JUSTICE.

CHANCERY DIVISION.

(Before Mr. Justice Romer).

BENNO JAFFE UND DARMSTAEDTER LANOLIN FABRIK v. JOHN RICHARDSON AND CO. (LEICESTER), LIMITED.

The plaintiffs in this action are a company incorporated in Prussia, and their claim was for an injunction to restrain the defendants from infringing letters patent (No. 4,992 of 1882) for "a new or improved manufacture of fatty matter from wool fat," which was a communication made to F. C. Glasser, of Berlin (the original patentee), by Dr. Otto Braun and Dr. Oscoar Liebrich. The invention related to a new or improved product termed "lanolin." The nature of the plaintiffs' invention and the uses to which the product of it may be put are fully set out in His Lordship's judgment, reported below. The defendants, among other defences, pleaded that there had been various anticipations of the plaintiffs' improvements in manufacturing "Lanolin," and in support of this part of their case they referred to passages from "The Historie of the World," commonly called "The Natural History of C. Plinius Secundus," translated into English by Philemon Holland, published in London, 1601 (vol. 2, p. 350, line 40, to p. 351, line 10). The defendants, however, relied principally on extracts from "Dioscorides de Materia Medica" (published at Cologne, in 1529), "De Lanis et earum sordida pinguedine, quam Græci œsypum dicunt," lib. ii. cap. 66, and published within this realm before the date of the plaintiffs' patent. Dioscorides, in the passages referred to, described a method of preparing œsypus, the greasy secretion of sheep or collected fat of fresh wools. The defendants also denied infringement.

Sir R. Webster, Q.C., Mr. Moulton, Q.C., and Mr. W. N. Lawson were for the plaintiffs; and Mr. Aston, Q.C., and Mr. E. P. Dove for the defendants.

Mr. Justice Romer delivered judgment as follows:—The patent, the subject of this action, is one for the manufacture of produce called "lanolin" from wool fat. At the date of the patent it was well-known that the wool of sheep contained fatty matters, but for all purposes of practical utility these fatty matters were only being extracted and used in the following way:—The wool was washed with an alkali, or alkaline soap, and water, so as to extract therefrom all the fatty matters and impurities, which, of course, remained in the wash liquors, leaving the wool clean. These liquors are often referred to as waste liquors, because the main object of the washing was to clean the wool and not to utilize the fat and impurities removed in the process. But at the date of the patent the wash liquors were not entirely wasted, but were utilized in the following way, and this was practically the only way in which they had been utilized for certainly more than a century before that date. Acids were mixed with the liquors in the vessel containing them. The result of this was that the fats went to the top, and would be and were skimmed off and kneaded into a greasy substance. This substance was and is known as "commercial wool fat." It contained many impurities, some of which could be cleansed away by more or less washing, and then it would sometimes be called "cleansed commercial wool fat." But even this contained many impurities; it was darkish in colour and liable to turn rancid, had an unpleasant odour, and was a coarse substance which could only properly be used, and only was used, as a grease for railway wheels or for treating leather, or for other similar rough purposes. It could not be, and never was, used as an unguent or ointment, or for any pharmaceutical or medical purposes, and until "lanolin" was discovered and put on the market after the invention, the subject of the patent, no product of wool fat was used or had been used for more than a century for pharmacy or for any medical purpose, or appeared or was referred to in any pharmacopœia published since 1720. Moreover, the process by which commercial wool fat was produced was tedious and expensive and liable to cause obnoxious smells and a nuisance to the neighbourhood of the factory. Now the product of wool fat from "lanolin," which was discovered by the patentees, and the manufacture of which was patented, was for all practical purposes a new and very valuable product. Its utility is not in dispute. It is extremely valuable as an unguent or ointment, being almost colourless, inodorous, and not liable to turn rancid. It is largely used in pharmacy, and can be usefully applied even to the mucous parts of the body. Its sale is very large and increasing, and it now appears in the pharmacopœias, and is recognised in pharmacy and medicine as a useful and valuable preparation. Such an invention as this is of great merit, and, speaking for myself, I should approach the specification of such an invention with every wish, so far as I legitimately could, to uphold it, and not, if possible, to allow it to be invalidated by technicalities. What, then, was the invention which enabled this new product to be made? To appreciate that, it is necessary for me to state shortly some of the properties of wool in its uncleaned state and its products. It contains, besides impurities of various kinds,

two fatty matters—viz., fatty acids in various forms which, when mixed with an alkali, form a soap; and cholesterol fats, which are practically not capable of being turned into soap by alkali. So that, when the wool is washed with an alkali or alkaline soap the liquor contains (1) cholesterol fats, (2) soap, and (3) impurities; and these three constituents differ in specific gravity, the cholesterol being the lightest. If to this liquor acids are added, in the way adopted before this patent, the result is that the alkali is driven out of the soap, and the fatty acids, set free, rise to the top together with the cholesterol fats and some of the impurities. So that the fats skimmed off contain not only the cholesterol, but the fatty acids mixed with impurities, and these go to form the ordinary commercial wool fat. Now, the fatty acids are the cause of rancidity, and it was chiefly due to their presence in the commercial wool fat that it had the defects I have before pointed out, and could be utilised only for the coarse purposes I have mentioned, and not in pharmacy or medicine. If the cholesterol fats be freed from these fatty acids and the other impurities, then a product is obtained which, when kneaded and washed, is found to have a great capacity for taking up water with it, and to have the highly useful qualities I have before referred to under its name of "lanolin." Now, the above properties of wool and its different constituents were for the first time fully ascertained and discovered by the inventors of the patented invention, and what they patented was the way by which, availing themselves of the properties they had discovered, the cholesterol could be separated from the fatty acids and the impurities and be washed up so as to make the "lanolin." That way is seen to be a very simple one when once discovered and set forth, but with this, as with many other inventions of the highest importance, it does not follow that, because it appears simple when discovered and explained, it was obvious before, or did not require invention or is not of great merit and the proper subject for a patent. The contrary is the case here. Though many had previously sought a process whereby a better product might be obtained from wool washings than the commercial wool fat, no such process had, up to the date of this patent, been ascertained; and I gather that the inventors only discovered the new process after a long course of investigation and experiment. The new process, stated shortly, is this:—Take the liquor (or lye, as it is sometimes called) coming from wool washings by alkali or alkaline soap. Refrain from acidulating it—that is, take the fresh, undecomposed lye—and, bearing in mind that the ingredients—(1) cholesterol fats, (2) soap, and (3) impurities—are of different specific gravity, separate them mechanically by the well-known and best and quickest method—that is, by a centrifugal machine. Take the light cholesterol fat, or "raw lanolin," so separated, and knead it in cold water. Further purification can be obtained by putting it in hot water (so separating the fat) and then putting the fat melted again through the centrifugal machine, or dissolving the fat by a solvent, and separating the solution by any of the well-known means. And the fat so cleansed is then again kneaded with water, and the product "lanolin" is obtained. The specification also points out that you can obtain the product from commercial wool fat by treating the latter with an alkali so as to obtain a milky fluid, which is equivalent to the fresh, undecomposed lye, and can be treated accordingly. Now, from what I have stated it is clear that no objection could be properly made to this patent, either on the ground that the invention patented was not useful, or on the ground that it was not new or not good subject-matter. What additional fact, then, have the defendants to rely upon to support an objection on any of the above grounds? Substantially nothing but this:—It appeared that the Greeks were aware, and Dioscorides pointed out, that from wool could be obtained, by washing it in hot water, some of its grease, and that if this grease were collected and washed repeatedly in water, a substance called "oesypus" could be obtained which was useful in certain cases as an unguent. But, so far as the process can be ascertained from the known editions of Dioscorides, or the treatises of persons acquainted with his writings, or with this oesypus, it is clear that it could not produce "lanolin," nor would any person acquainted with such process as described have been naturally led to discover lanolin, for (amongst other reasons) not a word is said in the description of the process about any alkali being used, and from what I have stated above it is clear that without it no "lanolin" could be produced. Washings in water, if repeated often enough, will remove some of the more soluble of the fatty acids, but will not remove all, some of these fatty acids not being soluble in water. And, indeed, from the descriptions of this oesypus set forth in the published works on the subject put in evidence by the defendant, it appears to me it had not the properties of lanolin. In addition, oesypus was practically unknown as a product for how many years before this patent, and when, in fact, it was last used, no one knows. It was last referred to in any pharmacopoeia in the year 1720. Doubtless it was cast aside because not practically useful. Some experts for the defendants say now that they have produced a more or less satisfactory ointment by following Dioscorides' directions; but Professor Atfield stated that he only learnt how to work Dioscorides' process gradually, and by the aid of three or four experiments, from which one can well infer what would have happened to any

persons less skilled than he if they had tried to make a product like "lanolin" merely from what Dioscorides had taught. All I need say in conclusion on this part of the case is that if any person can produce a useful article by merely following the directions of Dioscorides he is at liberty to do so notwithstanding the patent, but I doubt whether he can do so, and certainly it cannot be said that those directions are an anticipation of this patent or deprive the inventors of the merits of the invention, or prevent the Court from saying that the invention is new and a good subject now for a patent and of great value. This disposes of all substantial objections to the patent. As not unusual in patent cases, numerous objections were taken of a technical and petty description, which greatly increased the expense of the action and the time required to decide it, and yet when threshed out were found of no avail. All these were abandoned except one, which I must briefly notice—it is a typical instance. As one of the alternative processes for further purification of raw lanolin referred to in the specification is dissolution by a solvent, and amongst other solvents mentioned is methylated spirits, the defendants lay hold of this and say it is not a useful solvent, as, although it may dissolve impurities and so be useful as a purifier, it does not dissolve, except with difficulty, the pure cholesterol fats, and they say that according to the strict wording of the specification a person would gather that all the raw lanolin is intended to be dissolved. But, in the first place, I am satisfied on the evidence that the persons to whom the specification is addressed would readily gather from it that each solvent referred to is to be used as a purifier according to its known properties, and would not imagine that in every case it was essential to dissolve the whole of the raw lanolin. In the second place, the defendants' witnesses on the subject appear never to have tried methylated spirits on raw lanolin, and on the evidence as a whole I am satisfied that it can be used usefully on occasion as a solvent purifier on raw lanolin, though it may not be so efficacious as some of the other solvents mentioned in the specification. The result is, I hold the patent to be good. The only remaining question is as to infringement, bearing in mind that the patent is a claim for the making of lanolin and does not separately claim the product itself. Now, admittedly, what the defendants are selling under the name of anasphaline is (putting aside an immaterial ingredient) "lanolin." The question is how is it made? Treating, as I am entitled to do for this purpose, the defendants and the manufacturers from whom they buy their unfinished product as one person, the defendants' process of manufacture may be shortly stated thus. They adopt in substance the whole process of the patent, the only difference in the form of the process being that instead of mechanically separating the fresh, undecomposed lye formed by alkali washing by the centrifugal machine, they separate it mechanically by letting the lye rest in a vessel, so that the lighter portion, being the cholesterol fat, goes to the top, and then they skim that off and wash it. Does this enable the defendants to say that they have not infringed the patent? I think not. They appear to me to have taken the essence, or what is sometimes called "the pith and the marrow," of the invention. The use of the centrifugal machine was not of the essence of the patented invention. That machine was a well-known method of separating mechanically materials of different specific gravity, and was, to my mind, referred to in the specification as being—and because it was—the most speedy and efficient known means for effecting that separation. The mechanical separation by allowing gravity to act on such materials when deposited in a vessel in the ordinary way is a well-known equivalent, though not so speedy or efficacious, and the defendants cannot, by adopting this when they in all essential matters take and use the plaintiffs' invention, be heard to say that they are not using that invention or infringing the patent. It follows that the plaintiffs are entitled to the usual relief against the defendants as infringers.

NOTICES.

LONDON AGENTS

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FOREIGN REMITTANCES.

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Official Memoranda.

(From the Board of Trade Journal.)

CUSTOMS TARIFF OF WESTERN AUSTRALIA.

THE following is an abstract of the rates of Customs duty now levied on imports into Western Australia:—

NOTE.—N.o.e.—not otherwise enumerated.

ARTICLES.	RATE OF DUTY.
Candles	per lb. £ s. d.
Cement	barrel. 0 0 2
Glucose	cwt. 0 2 0
Iron (corrugated galvanised)	ton. 1 0 0
„ (plain „)	„ 0 10 0
Oil Cake	„ 0 10 0
Oil—Fish, vegetable, and turpentine n.o.e.	gall. 0 0 6
Oil (mineral)	„ 0 0 4½
Salt n.o.e.	ton. 1 0 0
Soap (all kinds) n.o.e.	cwt. 0 5 0
Soda Crystals	„ 0 2 0

The following have to pay a duty of 5 per cent. *ad val.* :—

Asbestos.	Resin.
Bark for Tanning.	Sheep Dip.
Copper Sulphate.	Shellac.
Dyers' Materials.	Soda Ash.
Inks, all kinds n.o.e.	Potassium Nitrate.
Machinery Belting.	Sulphur.
Iron Sulphate.	Sumac.
Paraffin Wax.	Myrabolams.
Pitch.	Valonia.
Pumps n.o.e.	Tar.

On the following a duty of 10 per cent. *ad val.* is levied :—

Enamelled Ware n.o.e.	White Lead.
Explosives n.o.e.	Paints, Colours, Varnish, n.o.e.
Filters.	Tallow.
Red Lead.	Thermometers.

The following pay a duty of 15 per cent. *ad val.* :—

Acids, all kinds n.o.e.	Galvanised Ironware n.o.e.
Castor Oil (refined)	Starch.

20 per cent. *ad val.* is levied on the following :—

Eucalyptus Oil	Soap (fancy, perfumed and toilet).
Saccharine.	Soap Powder and Extract.

Stearine, Manures of all kinds, and Disinfectants are admitted *duty free*.

THE RUSSIAN NAPHTHA UNION.

MR. P. STEVENS, Her Majesty's Consul at Batoum, in a report to the Foreign Office, encloses, in translation, the important points of an agreement recently signed at St. Petersburg, whereby as many as 60 per cent. of the naphtha producers of the Apscheron Peninsula have formed a union with a view to bringing about a material change in the crisis that at present exists in the Trans-Caucasian petroleum export trade.

The most prominent parts of this agreement, which was signed on the 24th of October, are, in their general outlines, as follows :—

The export of kerosene and its sale in foreign markets is to be carried on by members of the union not otherwise than through a committee to be formed of five persons and elected commercial agents. A producer violating this condition has to pay a fine of 15 copecks for every pood of kerosene exported abroad without the intervention of such agents.

The extent of the participation of a producer in the export and sale of kerosene is to be defined by the number of shares which he holds in proportion to the number of thousands of poods of kerosene actually carried away from Baku by the Trans-Caucasian Railway during the year 1892. A sub-committee, under the presidency of Mr. I. Lazereff, has been selected for the purpose of making an accurate apportionment in reference to the above arrangement.

All the quantity of kerosene intended for exportation by each manufacturer is to be handed over to a committee, which shall sell the kerosene in its own name. The manufacturer is obliged to furnish all the quantity of kerosene that he is called upon to export; in the event of the contrary, he will have to pay whatever damages may accrue in consequence of the quantity short furnished by him. The agreement relieves a manufacturer from this responsibility if the non-delivery of the

proper quantity of kerosene has been caused through fires, strikes, and other unfortunate circumstances at any given works which rendered the production of the oil a matter of impossibility.

All contracts concluded by manufacturers at an earlier date than the signing of this agreement are to be handed over through the committee to the commercial agency.

In the event of the proved unsuccessful and unremunerative operations of the commercial agents or committee members, by a decision of a general meeting of all the interested parties, they may be removed and replaced by others previous to the expiration of the term of the concluded agreement.

The committee is to regulate the actions of its commercial agents and separate members of the union, it is to establish the quality of the kerosene that is being delivered by the refiners for exportation, to define and verify the extent of the expenses connected with the operations of the commercial agents, to control the regularity of their actions and reckonings (not however to interfere in their immediate arrangements), to attend to the precise execution by the manufacturers of the obligations that they have accepted, both in respect to the quality and quantity of the kerosene they have to furnish for exportation abroad, to make final settlements with the parties that have signed the agreement, and so forth.

The members of the committee are to receive no remuneration. The following were unanimously elected as members of the committee:—The Caspian Black Sea Company, Messrs. Shibaieff & Co., and Mr. Unanoff; the remaining two members shall be elected by the kerosene producers on the spot at Baku.

This agreement is to remain in force until the 1st of April, 1899. If during the intervening period it will be found possible or necessary to transform the union into a shareholder company, or to alter the conditions of the agreement, the committee may be empowered by a general meeting to enter into negotiations with the Minister of Finance for that purpose; at the same time, all the parties that have subscribed to the agreement are bound to continue their joint operations in connection with the kerosene and export trade under any future altered conditions. None of the contracting parties have a right to refuse to take part in the obligatory export sale of kerosene until the expiration of the term agreed to, unless any of the manufacturers entirely cease to produce oil at their works, of which fact six months' notice has to be given to the committee.

In respect to the question of coming to an arrangement with the "Standard Oil Company," the right has been granted to the committee to enter into negotiations with that society for the purpose of working out the conditions of an arrangement by which the distribution of the sales in the markets of the world may be arrived at. These conditions must be preliminarily examined at a general meeting of the members of the union, after which they are to be referred to the Minister of Finance for his approval.

Up to the present, 60 per cent. of the kerosene producers have expressed their desire to join the union. The remaining manufacturers have had a period of one month from the date of the receipt of a copy of the agreement assigned to them for joining the union. Future factories are to be allowed to join the union, but not before the third year of its existence, and only in the event that the increase of sales called forth by an augmented consumption will not be less than 5 per cent. of the average general sales of kerosene for the first two years of the duration of the union.

The report presented to conference by the naphtha producers, in which they complain of their extremely critical position, was not discussed, as Mr. K. A. Skalkoffsky, the director of the Metallurgical Department, who was present during the debate, stated that this question would be discussed at the Ministry of Imperial Domains.

VALONIA PRODUCTION AT SMYRNA.

The *Moniteur Officiel du Commerce* in an article on the subject of the production of valonia at Smyrna gives the following particulars:—

Valonia, fruit of the oak tree (*quercus Oegilops*), employed in tanning leathers and as a black dye, is one of the most important articles of export from Smyrna. Its production in the Smyrna region reaches an average of 55,000 tons, representing a value of from £480,000 to £600,000.

The valonia harvest is commenced in the month of August and is continued until October. The nuts are dried in the sun, stripped of their husks and sent to Smyrna, where they are carefully sorted and classed according to their value. This operation increases by about 10 per cent., waste included, the cost of the merchandise. The chief producing districts are the following:—

Gundai, Pergamos, Dikili, Aidin, Bordo, Demirdjik, which supply the best qualities.

Giordes, Coulas, Dardanelles, Metelin, and Crete, which also yield fine qualities, but not so rich in tannin as the preceding. Then come Ouschak, Alacheir, &c., whose products are not so highly valued.

The Smyrna stock is supplied by successive consignments from these places to keep pace with shipments to Europe. Carriage is sometimes

effected by camel caravans, but more often by the railways, Smyrna being at the head of a line, one branch going to the east and the other to the south of Anatolia.

Large quantities of valonia are also received by sea, small craft loading either in the islands of the Archipelago or in the small coast ports.

The first quality is that known under the name of Superior Trieste. The Italian tanners in the north of the peninsula take this description and use it largely. The production of this kind of valonia is limited, and does not represent more than 1,000 tons, that is to say, about 2 per cent. of the total crop.

Then comes the quality known as "screened," which is much appreciated, and largely consumed in Germany, Austria, and Italy.

The third quality, that known as "natural," is the most abundant, and is easily and regularly sold in all the countries of Europe. This kind is subdivided into two qualities, first and second, according to the size and care brought to bear in sorting. The valonia exported to England forms a special class which is connected with the preceding, and is also subdivided into two categories, first and second quality. This class represents at least half of the crop.

The fourth class is that called valonia wastes, which includes the refuse from other classes. In spite of its inferiority it still gives from 17 to 19 degrees of tannin, and some well-chosen lots yield as much as 22 degrees. This kind is bought by the Sicilian tanners, sometimes also by the tanners of Northern France, because of its relative cheapness. England takes it when the price has reached its lowest limit. The production of valonia waste is estimated at 5,000 tons yearly, which may increase to 10,000 tons, when the rains have spoiled the crop at drying time.

With the exception of the fourth class just mentioned all valonia contains a proportion of from 30 to 40 per cent. of breakings called in Turkish *tirnak*.

STATE OF TRADE AT PHILADELPHIA.

Captain R. C. Clipperton, her Majesty's Consul at Philadelphia, in a report to the Foreign Office, transmits the following notes on the subject of the state of trade in that district:—

The depression in trade still continues, and thousands of persons are out of work. In Philadelphia, the textile industry, a very important one, is almost at a standstill, and other trades are not in a very much better condition. In most of the towns in the State of Pennsylvania affairs industrially are far below the normal, shops are running on half or one-third time, or are closed, the output is cut down, and relief committees have been organised for the first time in most instances.

OUTPUT OF COPPER AND ZINC IN CAUCASIA.

The following particulars are extracted from the Russian journal of the Ministry of Finance:—

The extraction of copper ore in Transcaucasia amounted in 1892 to 2,339,470 pounds (pound = 36lbs. avoirdupois), which reduced in 12 works have yielded 103,545 pounds of metal. The most important establishments of the country, Kalakentsk and Khedabek, both belonging to the Siemens firm of Berlin, produced 65,207 pounds of copper in ingots; Ouzourtchaisk, 7,757 pounds; Galisoursk, 8,406 pounds. The other eight works have supplied the rest, or 22,435 pounds.

The same journal announces the commencement of the exportation of zinc ore via the port of Novorossisk; 12,100 pounds were placed on board in 1892, and on the 1st January, 1893, there was in the place a stock of 60,000 pounds. The ore comes from a locality called Sadok, situated 70 versts distant from the Dary-Kokh station, on the Vladikavkaz-Rostoff line.

PRICES OF WOOD PULP IN SWEDEN.

Mr. J. Duff, her Majesty's Consul at Gothenburg, in a report to the Foreign Office, states that at the general meeting, held in November last, of the Scandinavian Wood Pulp Association, the price of moist wood pulp was fixed at £2. 6s. 8d. to £2 10s., and of dry wood pulp at £5. 10s. 5s. 7d. per ton delivered free on board.

REMOVING PITCH FROM WOOL.—A patented process, which originated in Germany, proposes to purify wool contaminated with pitch or other colouring matter by heating the dried wool in a bath of "extract" oil and coal tar oil at a temperature of 80°C. for twelve hours. The wool is then placed in a centrifugal machine and passed between rollers to disintegrate the pitchy or coloured masses, after which it is washed with ammoniacal water or benzine.

AWARDS AT CHICAGO.—The World's Fair Board of Awards have struck a balance of the awards already made, which has for the first time disclosed the fact that foreign exhibitors have so far received 63 per cent. of the prizes, while Americans only obtained 37 per cent. Mr. Thacher, president of the Awards Bureau, explains this apparent reflection on home enterprise by saying that while special commissions selected the exhibits of foreign countries, Americans exhibited their usual average commodities.

OTTO-HOFFMANN COKE OVENS.

THE following particulars of the installation and working of the Otto-Hoffmann coke ovens are given in an American contemporary:—A sample of the coal to be coked in Otto-Hoffmann coke ovens has to be sent to Dr. C. Otto and Co., to be distilled by Dr. Knublauch. The construction of the ovens is based on this analysis, and if the whole plant is built after the plans, the yield of coke, tar, and sulphate of ammonia is guaranteed by Dr. C. Otto and Co. The average yield of German coals is 75 to 77 per cent. of coke, not excelled in any other oven; 1·2 per cent. of sulphate of ammonia, and 3·25 per cent. of tar; besides, there are 3,000 to 4,000 cubic feet of surplus gas per ton of coal coked, not required for maintaining the coking process, which might be utilised in generating steam, lighting, &c. The principal product always being a superior quality of coke. The different coking coals of Europe are similar to the coking coals of America, and there is no doubt at all that similar results will be obtained from such coals in Otto-Hoffmann coke ovens. The plants are built in two or three blocks or batteries of 30 ovens each to one condensation plant. A plant of 60 ovens, including condensation, ammonia factory, &c., erected on a favourable site, ready for operation, with royalty included, will hardly cost 150,000 dols., or by the capacity of 1,000 tons of coal per oven per annum, about 2·50 dols. per ton. The labour cost of coking will be 0·22 dol. to 0·19 dol., and the total cost of running the condensation plant about 0·25 dol. to 0·20 dol. per ton of coal coked. Assuming the price of coal 0·85 dol. per ton, and 1·35 dol. per ton of coke, the results per ton of coal would be:—

1,680 lbs. of coke, 1·35 dol. per ton	1·13 dol.
26 lbs. of sulphate of ammonia, 3 cents. per lb. ..	0·78 "
72 lbs. of tar, 8 dols. per ton	0·29 "
3,000 cubic feet of gas, 10 cents. per thousand ..	0·30 "
	2·50 dols.

The following would be the expenses:—

Coal, labour, cost of cooking, and total cost of running the condensation plant (85+22+25) ..	1·32 dol.
Gross profit	1·18 "

or 47 per cent. interest on the investment of 2·50 dols. The proper location for a plant is at the mines in Germany, for the latter require steam for pumping, hoisting, etc., which can be produced by the waste heat and surplus gases of the coke ovens. The gas is also utilised for lighting. Of course, the selection of a proper site must be based on commercial calculations, and the erection of a plant in connection with other industrial establishments might prove of great advantage. The great first investment ought not to be of any consideration, for the whole capital is redeemed within a few years. Dr. C. Otto and Co. are prominent in the manufacture of fire-bricks, and they have built since 1876 about 5,733 of their coke ovens without saving bye-products, and 1,555 Otto-Hoffmann coke ovens with saving tar and ammonia, with a total capacity of about 8,000,000 tons of coal per annum. They have built 340 Otto-Hoffmann ovens solely at their expense, and run them for the benefit of the bye-products. There were in operation or under construction in Westphalia, Saarbruecken, and Silesia 1,730 bye-product ovens in 1891, of which 1,280 were Otto-Hoffmann ovens.

THE GAS SUPPLY OF LONDON.

THE quality of the gas supplied to the City of London for the week ending December 9th, 1893, was good. According to the report of Mr. W. J. Dibdin, chemist and superintendent gas examiner to the London County Council, the tests made at the various testing stations showed no deficiencies in illuminating power. The following figures have been prepared from the report, and show the average composition of the gas calculated on the mean test:—

Company.	No. of districts tested.	Illuminating power (in stand. sperm candles).	Sulphur. Grains in 100 cb. ft.	Ammonia. Grains in 100 cb. ft.	Sulphuretted Hydrogen
		Mean average.	Mean average.	Mean average.	
Gas Light and Coke Co.	12	16'50	11'16	0'30	Nil.
South Metropolitan Gas Co.	6	16'63	12'10	0'25	Nil.
Commercial Gas Co. ..	2	16'20	7'65	0'45	Nil.

The standard gas supplied by these companies should have an illuminating power of 16 sperm candles, and contain not more than 22 grains of sulphur and 4 grains of ammonia per 100 cub. ft. of gas, on an average of three days, with a pressure of one inch between sunset and midnight, and six-tenths of an inch between midnight and sunset.

THE EDUCATION OF INDUSTRIAL CHEMISTS.

BY PROFESSOR GEORGE LUNGE.

(Concluded from page 387.)

NOBODY indeed who looks at the present state of chemical industry with an unprejudiced eye can deny that a mere training in theoretical chemistry is as unable to cope with the competition to be met with in the rest of the world as is the formerly universal rule-of-thumb management. We must needs teach our future chemical manufacturers how chemical operations are and ought to be carried out on the large scale. To accomplish this, we must approach the subject from various sides. We must, in the first instance, teach our students at least the elements of mechanical engineering, of building construction, and of furnace building. This supposes a much better knowledge of mathematics than chemists formerly used to possess, as well as some practice in mechanical drawing. We must further introduce them to a description of the various classes of work they meet with in their career. This should be done in different ways. At all events the leading chemical industries ought to be described, going into all essential details of apparatus, and thus serving the double purpose of a preparation for those intending to enter that special field, and of giving to all others important suggestions how the appliances invented for one manufacture may be used in another, possibly entirely different from the first. Many of my former students who are now employed in the industry of coal-tar colours, or in dyeing and tissue printing, have told me how useful to them has been the description which they received as students of the apparatus employed in the manufacture of heavy chemicals. The reverse is just as possible, and actually met with. Thus thirty or even twenty years ago the use of centrifugal machines and filter presses was almost unknown in the alkali and chlorine manufacture; nowadays it is quite common. For another very practical reason it is necessary to offer at a technical college, instruction in all the more important branches of technical chemistry, viz., because such a college should enable all its students to take situations wherever they find them open. This applies to the great majority of students, although there is always a number who go to college with a specific purpose, principally those connected with manufacturers whose works they are destined to enter after finishing their studies. I cannot therefore approve of the plan proposed by an Austrian professor, according to which each polytechnicum is to cultivate a separate speciality—say sugar making, or brewing, or alkali making, or dyeing, or colour making, and so forth—with the idea that a youth of eighteen years, before entering on his academical career, should absolutely fix what special manufacture he is to devote himself to afterwards. Suppose he has studied four years with the entire object of becoming a sugar manufacturer, but at the end of that time it is seen that that trade is declining, or has migrated elsewhere, or that the supply of sugar chemists is largely in excess of the demand. What can he then do but throw up all he has studied and begin over again on a different line? If he has prepared himself less specially, but more universally, he will probably not be quite so useful at a sugar works for the first few months, but he has the chance of taking to any other manufacture where there is a vacancy, and of picking up whatever situation comes in his way.

I cannot approve of the other extreme, introduced at the Ecole Centrale in Paris, where all the students, whether they mean to follow the profession of civil engineering, of mechanical engineering, or of industrial chemistry, are taught exactly in the same way and receive instruction both in all mechanical and chemical subjects. I do not know whether that system produces good engineers; but I am told it does not produce good chemists, and I can readily believe it.

I should also like to correct a mistake, not infrequently met with, viz., that the teaching of chemical technology is of comparatively little value, because the professors themselves generally are not acquainted with the very last phases of progress made in the manufactures, seeing that there are constantly new inventions made, many of which are kept secret, or are very imperfectly described by patents. This is perfectly true, and yet it is of very little importance. No teaching of real or imaginary trade secrets would enable a mere book or laboratory student to carry on real work on a large scale; only practice itself can do that. But that practice will be all the more quickly and thoroughly acquired, the more the student has heard of technology generally and of the special branch to which he devotes himself afterwards. Any fresh improvements he finds applied when entering a manufactory will be quickly grasped by one who enters upon his practical work armed with such general preparation as has been described above, which has taught him to think and see matters in a technical light, as I have expressed it above.

There are some subjects which are common to all chemical operations on a large scale, and which ought to be learned by every student. The technology of water and of fuel are the principal subjects in question, and the latter especially opens out a large field, embracing the construction and working of heating appliances of all kinds. These, together with the elements of engineering and building con-

struction on the one hand, and with the thorough study of theoretical chemistry and the concomitant sciences of mathematics, physics, mineralogy, and geology, and lastly with practice in the chemical and physical laboratory and at the drawing board, ought to fill the first years of the study at a technical college. The last years ought to be devoted to chemical technology proper, and to a special study of such subjects as have not been sufficiently mastered before, or as are likely to form the main occupation of a student in later life.

The whole study is generally crowned by the obtention of a degree, in Germany either a "diploma" or the title of Ph. D. The latter, owing to the jealousy of the old universities, cannot yet be conferred by the polytechnic schools themselves, but it is very frequently earned by their students afterwards. I have found the greatest possible benefit to arise from the system of "diploma examination." A student, instead of losing himself in a speciality, and being too much absorbed thereby, to the detriment of his general scientific and technical culture, or of falling into habits of laziness and dissipation, or else of becoming an exclusive devotee to athletic sports, is compelled to concentrate his energies once more on all the more important branches of his life-studies, and to carefully rehearse what he has once learned, but much of which he will have forgotten. Taking human and especially youthful nature as it is, there is no denying that mere abstract considerations of what may be good for a man's future are not sufficiently powerful to counteract the forces, both good and bad, which tend to draw a student away from his work, and that it is immensely better to hold out to him an immediate aim to strive for, in healthy competition with his fellow students. The German polytechnics are in this respect less fortunate than our Swiss institute; in the former only a small minority of the students go in for the diploma, whereas with us most of the students enter with the purpose of ultimately obtaining the diploma. Many of them drop off on the way; some others, in spite of all exertions, do not reach the goal, but about half of the total number of students leave the school, not merely in possession of a piece of stamped paper, but in that of all the additional knowledge they have acquired in quest of that paper, and which they would not have got without such an inducement. It is a great satisfaction to our institution that its diploma is eagerly sought, and hard work bestowed upon it, by nearly all the sons of wealthy manufacturers, who have been born with a silver spoon in their mouth, and whose future places are absolutely secure to them without a diploma; but these young men are well under the sway of that healthy spirit of doing work which prevails at our institution, in consequence of the great value attributed to the diploma. Most of these wealthy young men are ashamed of starding lazily by, while their fellow students strain every nerve for the diploma; they want to show what mettle they are made of, and they therefore go in for the diploma as well, to their lasting benefit in more ways than one.

The diploma examination in our case comprises a full knowledge of general inorganic and organic chemistry, to the same extent as the universities require for the degree of Ph. D., further, of mechanics, physics, and mathematics, including the elements of the calculus, and at least some of the departments of natural history. In the field of chemical technology the general chapters are compulsory, but the candidate has the option of being examined in a number of special chapters according to his choice; further in the elements of engineering and building construction. Moreover, each student must do a considerable amount of special laboratory work extending over a whole semester, by which he proves his skill in all departments of chemical analysis and in preparing any chemical substances described in chemical literature or in patents. For the diploma itself we do not require any difficult research work; but most of our graduates aspire to the title of Ph. D., and for this they are obliged to do substantial research work which generally keeps them in the laboratory about a twelvemonth over and above their proper college time. When they have accomplished this they have not merely got an ornamental title, but they have, what is certainly of greater importance, acquired such a mastery of our science that we can confidently dismiss them into practical life. Even then, it is hardly necessary to say, great differences exist among them. Some remain in modest situations all their lives, but others rise quickly to higher places, every one according to his abilities and to his deserts. The successful men, without a single exception that I know of, look with warm gratitude on the institution where they have received their scientific training, and which has raised them above the hap-hazard luck of rule-of-thumb experience as well as above the one-sidedness of autodidactic studies—both of which are excellent as far as they go and not to be despised by any means in themselves, but neither of which can cope with a carefully devised and conscientiously carried out scheme of training the mind for the profession of a technical chemist such as I have had the honour of laying before you. Nobody is more conscious than I that at no existing institution has the beau ideal of such a scheme as yet been attained, but at Zurich we believe that we are, on the whole, on the right way, and that we shall do well not to exchange our plan for a totally different one but rather try to improve it on the lines on which we are now working.

FLOATING LAUNDRY SOAP.

THIS soap is easy to make, and, if well made, makes an excellent toilet soap. Of course, being white, everything such as kettle, crutcher, &c., must be clean. The method is as follows:

Charge kettle with 2,000lbs. No. 1 tallow, 2,000lbs. good soft grease, and 2,000lbs. coconut oil, to which add in kettle 2 bbls. salt brine 18° strong. When well warmed up, pour or run in lye 6 to 8° strong, until all is united; then increase the strength gradually as in the other soaps. As soon as signs of saponification show, go slower. But don't give any more lye until *sure* that it requires it, as this soap must be finished with just the least perceptible taste of lye. The amount of salt must be estimated closely, so that when thoroughly saponified the lye will be *nearly* clear, but not quite so, as we want it to settle a *little* nigre. Settle four or five hours, then dip off into crutcher, being very careful not to stir up the lye. When full, start crutcher, which should make about 60 to 65 revolutions per minute. Crutch until quite light. If it does not get light enough, add 18-20lbs. salt brine 2 to 3° strong. Perfume to suit taste. When soap marks 145° Fah., run into frames, and cover up warm. If you have got your finish right, or just about sweet in taste, it will make nice toilet soap. If you have got it a little stronger, you may have to cut up into laundry, as it may be a little too strong for toilet soap. A little practice will enable you to turn out a nice white soap, mild enough for any toilet use, and a soap that can be made in a few hours. It will get perfectly white after standing a little while.—*American Soap Journal*.

GAMBIR.

Writing on the chemical composition of gambir, H. N. Ridley says in the Agricultural Bulletin of the Malay Peninsula that this dyestuff agrees in composition with cutch (*Acacia Catechu*), and especially with the pale variety of Northern India.

The results of quantitative analyses vary to a certain extent according to the method used. In the analysis of Messrs. Evans and Dr. Romburgh the methods employed are not given, so it is difficult to compare these analyses. Dr. Romburgh says the water in commercial gambir seems to vary from 9.5 to 16%, but it is certainly too often more than this.

The ash varies, says Dr. Romburgh, from 2.5 to 5.4%, and he suggests it is influenced by the amount of water used in contact with the gambir. Thus in Singapore gambir made by boiling the leaves in water he found 3.9 ash, while in Bangka gambir made by steaming he got 2.6 ash only. In Mr. Evans' analysis the ash is given as very much more than this, viz., 6.34 and 4.46.

Fluckiger got 2.6 ash from some cube gambir, and this, he says, consisted mainly of carbonates of calcium and magnesium, but there must be some error in this, as these salts are not stable under heat.

The catechin and catechu-tannic acids are, of course, the important factors in the gambir. In Dr. Romburgh's samples Singapore gambir contained less catechin and more catechu-tannic acid than that of Bangka. This difference, he says, is most likely mainly due to different modes of preparation. According to the Bangka method one would obtain less extractive matter and owing to the much shorter exposure to boiling heat, the amount of catechu-tannic acid produced by decomposition of catechin (which change appears to be produced on protracted boiling) would be less.

Catechu-tannic acid is an anhydride of catechin which can be obtained by gently heating the latter. It is soluble in water and capable of decided tanning properties, precipitating alkaloids and albumen. It must, therefore, be remembered by manufacturers that if a product rich in catechin is required, excessive heating must not be resorted to.

Dr. Romburgh mentions an instance published (but where he does not say) in which a sample consisting of round pressed cakes of 2.5 to 3 grams each, gave catechin only (40%) and no catechu-tannic acid. This sample was said to have come from China. If so it was probably not gambir at all, as gambir is not made in China.

If a leaf of gambir be rubbed in the hand, as described before, a soapy-looking substance is exuded, of a white colour. This put under the microscope can be seen to be composed of innumerable white crystals, very minute, acicular, much resembling those of prepared gambir, only smaller. These are crystals of catechin. They are not visible in the leaf itself, nor can they be obtained by cutting the leaf across and expressing the little juice obtained on a glass slide. From this, I gather that the catechin in the living leaf is in a state of solution, and is crystallized only on friction.

The leaves, which are very rich in chlorophyll, become brown very rapidly when bruised. A transverse section shows that this is not due to the alteration of chlorophyll, but to the alteration, probably oxidation of the other cell contents, probably the liquid containing the catechin, which becoming brown masks the green chlorophyll.

When the leaf is brown, no catechin remains, so that I gathered that the catechin is only stable in the form of crystals, and that the liquid containing the catechin is rapidly destroyed by oxidation.

In conclusion, I may state that the chemical investigation of gambir during the various stages of the growth of the plant and preparation of the extract, has been taken up by Dr. Bott, Government Analyst of the Straits Settlements. We may, therefore, look forward before very long to a paper dealing fully with the chemistry of gambir, the knowledge of which at present must be considered incomplete, and in some respects even indefinite.

At present I am able to append the results of analyses by Dr. Bott of a number of samples of gambir, and to add a few general remarks as to gambir considered chemically.

No. 1.—Malacca Finger Gambir.		No. 2.
Water	14.50	13.35
Ash	2.92	3.50
Catechin	43.00	42.00
Catechu-tannic acid	3.00	5.20
Organic matter other than tanning principles	36.58	35.95
	100.00	100.00
No. 3.		No. 4.—Malacca Flake Gambir.
Water	19.99	14.25
Ash	3.65	2.80
Catechin	42.20	44.00
Catechu-tannic	7.30	2.80
Organic matter	26.86	36.16
	100.00	100.00

Bale Gambir as received in Singapore.

No. 5.		No. 6.
Water	36.65	44.02
Ash	3.50	3.54
Catechin	26.10	20.50
Catechu-tannic	9.20	11.00
Organic	24.55	20.94
	100.00	100.00

From the above it appears that No. 3 is really the richest in tanning principles, though containing more water than the rest, except the very wet bale gambir. The low percentage of tanning principles in bale gambir should be considered, together with the large percentage of water. Referring the percentages of tanning principles to the samples free from water we get the following:—

Dry		Contains total tanning principles.	
No. 1	...	...	52.60
" 2	...	...	54.60
" 3	...	...	61.90
" 4	...	...	54.46
" 5	...	...	55.50
" 6	...	...	53.30

It will be seen that, but for the large amount of water, Nos. 5 and 6 are not bad gambir for tanning purposes, although for dyeing they might not be suitable on account of their bad and uneven colour.

THE DANGEROUS EMPLOYMENTS INQUIRY.

THE LUCIFER MATCH TRADE.

A REPORT of the Committee of Inquiry on Chemical Works, drawn up in October and presented to the Secretary of State for the Home Department, is just published as a Parliamentary paper. It deals entirely with the inquiries made as to lucifer match factories. Although the Committee have been unable to trace any cases of necrosis (except two at a well-known match factory) since the special rules were established, yet they are of opinion that danger from that disease exists where white or yellow phosphorus is used. The rules already in force require some alterations and additions, especially relating to better ventilation and periodical medical examinations. The practice of allowing persons to be employed in galleries above departments where fumes may arise is deprecated, and it is suggested that precautions should be taken for the extinction of fire in the boxing departments. There was some difference of opinion among the Committee as to whether it was advisable that a register should be kept with the names and addresses of persons employed in all dangerous trades, and in consequence alternative clauses are found dealing with this matter in the special rules appended to the report.

Correspondence.

*. We do not hold ourselves responsible for the opinions expressed by correspondents.

ST. HELENS GAS.

(To the Editor of the Chemical Trade Journal.)

SIR,—I notice on page 390 of your last issue a statement about St. Helens gas which is misleading. The Gas Committee presented their report to the Council for the month of October, during which month the illuminating power of the gas had been equal to 17.66 candles; they also reported that the oil gas apparatus had been going for a few days. Therefore, the illuminating power reported upon for the previous month was not influenced by the oil gas process.

By the test from the same authority for the month of November (during which time the oil gas apparatus was in regular work, and was our only method of enriching the coal gas), the illuminating power was equal to 19.14 standard sperm candles, showing a decided improvement in the illuminating power since the oil gas process was put into operation.

I shall be glad if you will give publicity to this correction.—
Yours, etc.,

SAMUEL GLOVER, Engineer and Manager.

ANSWERS TO CORRESPONDENTS.

SODA.—There will be. It is the United Alkali Company, Limited. They are not actually at work, but are very near completion.

W.N.—They are very hard to get.

E. I.—It has been sent.

J.M.—We do not think you would have any difficulty in getting permission.

F. Bros.—Thanks for communication.

G.L.—The last portion has been sent this week.

M. & Co.—They will do, though we have had better.

B & C.—Early in January.

M. Bros.—Too late for this week, see next issue.

THIOCARBAMID.

DR. J. M. EDER, who has been experimenting with this preparation for removing stains from negatives, in reporting on the same, states:—The preparation sent consisted of some white crystals, and gave, in water, a colourless liquid. I found that it acts (in acid solution) as a preventative against yellowish negatives.

I made a solution of

10 parts thiocarbamid,
10 parts citric acid or sulphuric acid,
1,000 parts water.

I immersed in this solution a pyro-negative strongly covered with green fog, and after a short time the yellowish green colour had disappeared. With amidol I was not able to obtain negatives showing green fog, and, therefore, could not make a trial.

If the salt is added to the fixing bath it prevents the formation of green fog with plates and bromide silver papers; but it must be observed that the bath should be *acid*.

For fixing I found the following formula very useful:—

Water, 1,000 c.c.
Fixing soda, 200 grammes.
Thiocarbamid, 10-15 grammes.

To this solution is added 50 grammes of bi-sulphate of soda.

I would observe that plates, as well as papers, before fixing, must be washed sufficiently so as to remove the traces of the developer.

As the action of thiocarbamid in the fixing bath is only of proportionately short duration, it is recommended to use an ordinary acid fixing bath, which, as is known, will, by itself, prevent, to a certain extent, the formation of green fog; and after the use of this, if necessary, the above discolouring bath can be applied, and which will become necessary, specially for certain kinds of bromide silver gelatine paper. I can certify, therefore, that for this purpose the said salt, thiocarbamid, proves a good useful means of removing discolouration.

AN ALUMINIUM YACHT was launched on the Loire recently. It is of 10 tons register, and cost 50,000 francs. It is 45 feet long, and only weighs about 1,600lb. Such boats, if successful, will prove invaluable for exploring expeditions.

OBITUARY.—On Monday evening Mr. McEwen, a well-known Glasgow merchant, died suddenly at his residence of heart disease. He was Chairman of Young's Paraffin Oil Company, a late President of the Glasgow Chamber of Commerce, twice Lord Dean of Guild, and director of many Scotch companies. He was aged 81, but had been on 'Change the same day transacting business.

Parliamentary Jottings.

CARRYING OUT THE FERTILIZERS AND FEEDING STUFFS ACT.

IN the House of Commons, on Thursday last week, Mr. Channing asked the President of the Board of Agriculture whether an appointment had yet been made of a chief analyst to the Board under the Fertilizers and Feeding Stuffs Act, 1893, and whether in making this appointment regard would be had to the generally expressed opinions both of agriculturists and of representatives of the trade that practical experience in analysing agricultural fertilizers and feeding stuffs was an essential qualification.

Mr. Hy. Gardner replied that no appointment had yet been made, nor had the remuneration been definitely settled by the Treasury. He could assure hon. members that the Board would give the fullest consideration to the representations that had been made on the subject, and he hoped he might be able to make such arrangements as would give confidence to all classes concerned and ensure the success of an Act for which he himself was so largely responsible.

Mr. Chaplin asked whether the Treasury was responsible for the delay in the matter.

Mr. Gardner thought that was a question he was not called upon to answer.

THE WALTHAM EXPLOSION.

On Tuesday last Mr. Woodall, replying to Colonel Lockwood, said that compensation to the widows and relatives of the men killed in the late unhappy explosion at Waltham Abbey and also allowances to the men injured would be paid under a Treasury warrant. He was sorry to say he had that day received information of the death of two others of the unfortunate men, making nine fatalities in all. In reply to Mr. Hanbury, Mr. Woodall said there was no foundation for the suggestion that the Government did not carry out in their factories the same regulations as were enforced in private works.

Trade Notes.

CHEMICAL INDUSTRY IN JAMAICA.—The West Indies Chemical Works (Limited) is the title of a new enterprise about to be established at Spanish Town, Jamaica, the object being the extraction of dye from logwood, cashaw, and other vegetable substances.

DESULPHURISING ZINC ORES.—According to a patented process, this is accomplished by first heating the ores with sulphuric acid at a temperature of from 300° to 400° F. The sulphurous gases evolved are conveyed to vitriol chambers. The residue is then heated to dull redness in furnace, and the sulphurous acid collected as before. The resulting zinc oxide is smelted in the usual way.

ARTIFICIAL COGNAC.—The following compound after storing for some time will closely resemble the genuine article. Mix 10 ounces of acetic acid, 7 ounces of *spiritus aetheris nitrosi*, 1¼ gallons white French wine, ¾ pint of tincture of oak bark (extracted from 4 ounces of oak bark), and 30 gallons of spirits of wine of 55 to 60 per cent., and the necessary quantity of sugar colour (caramel).

HYDRAULIC VALVES.—In view of the completion of the hydraulic mains being laid in Manchester, Messrs. Lloyd and Lloyd have stocked at their Manchester branch a number of useful accessories connected with hydraulic work. The principal of these is a new hydraulic valve. The valve is a hollow cylinder, stopped at one end, and having holes near this end to admit water, the other end rests on a seat of gun metal, leather, india-rubber, gutta-percha, or similar substance. Where clean water is used, the gun metal seat is to be preferred, but with dirty, gritty water a slightly elastic substance is better. The water pressing equally on the inside and outside of the valve maintains a perfect balance whatever the pressure may be, thus doing away with levers and balance weights or springs; and further, a sudden shock in the pipes cannot affect the lift or machine to which the valve may be connected.

LENGTHENING A CHIMNEY STACK.—Mr. A. Bartling, of Bernburg (Anhalt), has recently lengthened a chimney of some 100 feet in height, at the spinning works of Messrs. Emanuel Long and Company, Nancy, by about 30 feet without stopping the works for a day. Aided by another man, whose agility and nerve were equal to his own, Mr. Bartling fixed a series of light steel ladders to the chimney by means of iron hooks driven in between the courses of the bricks, erected a pulley at the top of the chimney and a flight of scaffolding all round, and then having lowered the cornice surmounting the chimney, they built on to the top at the rate of about 4ft. to 5ft. per day. The whole work occupied eight days, and was perfectly successful. While this is the first chimney dealt with in this manner in France, Mr. Bartling states that he has carried out similar operations in Germany, at the chemical works at Thann, and at the works of the Mulhouse Gas Company.

THE CAT WAS ELECTROPLATED.—The following incident is said to have occurred at New Salem, a small village at the foot of the Heldeberg Mountains, U.S.A. The local scientists are said to be puzzled, and it is further stated that a member of the Albany Institute is investigating the case, but in the absence of further details we prefer to merely record the occurrence as it is related in the *Detroit Free Press*. At the time of the incident a terrific thunderstorm was raging over the village, where is situated an old mansion occupied by A. S. Vandyck, and in the parlour of which hung a collection of revolutionary swords, one of which was heavily plated with silver. In the course of the storm one terrible crash aroused the household. All were stunned for a moment, but recovering, they hastened to discover what damage was done. Suddenly the younger Vandyck pointed to an old-fashioned sofa. Upon it lay what was apparently the silver image of a cat curled up in an exceedingly comfortable position. As far as the shape and posture of the animal was concerned it might have been a live cat. Each glittering hair was separate and distinct, and each silver bristle of the whiskers described a graceful curve as in life. Father and son turned toward the swords which hung upon the wall just above the sofa and there saw that the sword had been stripped of all its silver. The hilt was gone and the scabbard was but a strip of blackened steel. The family cat had been electroplated by lightning. In one of the panes of glass in the window was found a round hole about the size of a half dollar, where the lightning had evidently entered. There was a charred streak across the sash, where the electrical fluid had made its way to the sword, down which it passed to the cat, carrying with it the silver which it deposited upon the animal. Of course the cat was instantly killed, and therefore remained in the position in which it was quietly sleeping when the flash came.—Go it Jonathan.—ED.

Market Reports.

LIVERPOOL OIL AND COLOUR MARKET.

WEDNESDAY.

OILS.—Palm oil sold pretty freely at the end of last week, but is now again quiet, while prices are much in favour of buyers, Lagos having been sold at £23. per ton. Olive keeps steady, with a rather better demand; prices, however, remain stationary. Linseed has declined further in price, but is very quiet, even at the reduction, there being little, if anything, doing in Liverpool makes in export casks at 20s. 3d. to 21s. 6d. per cwt. Cottonseed is steady now there has been a still further easing off in price, Liverpool refined being quoted 20s. 3d. to 22s. per cwt. Castor oil is quiet, with good seconds Calcutta at 2½d. to 2¾d., and first pressure French 2½d. per lb. ex quay, store 2½d. Tallow is steady, with a scarcity of supplies; prices are nominal. Resin keeps moving quietly at 3s. 9d. to 3s. 10½d. per cwt. for common; the market, however, has a sluggish tendency. Spirits of turpentine are steady at 22s. to 22s. 3d. per cwt., holders being firm. Petroleum is rather neglected; American remains at 4½d. to 5¾d., according to quality, and Russian refined 3¾d. per gallon.

COLOURS are steady without alteration in prices. Ochres: Oxfordshire, common, £10., medium, £12., best, £15.; Derbyshire, common, 40s.; medium, 50s., best, 60s.; Welsh, best, 70s., seconds, 50s., and common, 18s.; Irish, Devonshire, 40s. to 45s.; French, J.C., 55s. to 60s.; M.C., 65s. to 67s. 6d. Umber: Turkish quiet; Devonshire, 50s. to 55s. White lead, red lead, and oxide of zinc unchanged. Venetian red, £6. 10s. to £10. Cobalt: Prepared oxide, 9s. 9d.; black, 9s.; blue, 6s. Zaffres: No. 1, 3s. 6d.; No. 2, 2s. 6d. Oxide of iron: Common, £6.; medium, £10.; finest, £20. Zinc oxide, £23. to £25.

MISCELLANEOUS CHEMICAL MARKET.

Business generally in the chemical trade is somewhat dull, due, no doubt, in a great measure to the approaching holidays. Caustic soda continues in good demand, both for home and export, and prices are strong. We quote 77%, £11. 10s., f.o.b. Tyne; 74%, £10. 5s., Liverpool; 70%, £9. 7s. 6d.; 60%, £8. 7s. 6d.; cream, 60%, £8. 2s. 6d. Bleaching powder rather scarce, and prices are well maintained. We quote £8., rails, for softwoods, and £8. 10s., f.o.b., for hardwoods. Soda ash move slowly, and without change in price. Saltcake still offered at low figures, but buyers cannot be found. Soda crystals in better request at £2. 12s. 6d., bags, and £2. 17s. 6d. casks, rails, works. Chlorate of potash quiet at 8d.; soda steady at 8¾d. Nitrate of soda sells freely at £9. 2s. 6d. to £9. 5s. Sulphate of copper slightly improved, £16. 5s. to £16. 10s. is value to-day. Recovered

sulphur quiet at £4. 2s. 6d., rails, in bulk. Acetates have a good inquiry, and prices are firm; brown lime we quote £7., gray £11. Acetate of soda, £16. 10s. Foreign white acetate of lead £26., gray £21., brown £17. Ammonia salts scarce, and prices are very firm. Gray muriate £23. 10s. Carbonate—lump 3¼d., ground 3½d. Sal-ammoniac 35s. and 37s. Yellow prussiate of potash sells slowly at 10¾d.; red firm at 1s. 6d. Carbonate of potash finds a ready sale at former prices. Caustic dull, with but small inquiry. Oxalic acid rather firmer, but price remains at 3d. White powdered arsenic is inclined to advance. Stocks are light, £13. 10s., at Garston, is current quotation to-day.

THE METAL MARKETS.

LONDON, WEDNESDAY.—Pig iron inactive: Scotch warrants closed at 43s. 10d., Middlesbrough 35s. 9d. cash, and hematite 45s. 9½d. Copper, steady: Chili bars, G.O.B.'s and G.M.B.'s, closed at £43. 1s. 3d. to £43. 6s. 3d. cash, and £43. 11s. 3d. to £43. 16s. 3d. three months. Tin quiet: Straits closed at £75. 5s. to £75. 7s. 6d. cash, and £76. 5s. to £76. 15s. three months; Australian, £75. 12s. 6d.; English ingots, £79. 10s. to £80. Lead, quiet: Spanish, £9. 11s. 3d.; English, £9. 12s. 6d. to £9. 15s. Silesian spelter: ordinary, £16. 13s. 9d. Nickel, 1s. 7½d. Antimony, £37. 10s. Quick-silver: First hands, £6. 7s. 6d.; second hands, £6. 7s. Copper shares, dull: Cape, 1½ to 1¾. Copiapo, 1½ to 1¾. Libiola, 3¼ to 3½. Mason and Barry, 1½ to 2. Rio Tinto, 14½ to 14½. Tharsis, 4¾ to 5½.

WOLVERHAMPTON, WEDNESDAY.—The important announcement by the President of the Miners' National Federation that no further colliers' disturbance is to be expected next year occasioned great satisfaction at to-day's market, and consumers were more disposed to negotiate. Pig and coal prices continued strong, but manufactured iron and cokes were weak. Northampton forge pigs 44s. 6d. Derbyshire forge, 45s.; foundry numbers, 47s. 6d. to 48s. 6d. Staffordshire common were 48s. 6d.; and all-mines, 57s. 6d. Sheets, singles, £6. 15s. and upwards; doubles, £7.; galvanised corrugated sheets, £10. 10s. to £11.

GLASGOW, WEDNESDAY.—Market firmer, with small business. Scotch done at 43s. 10d. cash, also at 44s. one month; closing with buyers at 43s. 10d. cash, sellers ask 43s. 10½d. Middlesbrough done at 35s. 11½d. and 36s. one month; closing with buyers at 35s. 9d. cash, sellers ask 35s. 9½d. Cumberland hematite done at 46s. and 46s. 1d. one month; closing with buyers at 45s. 9½d. cash, sellers ask 45s. 10d. Middlesbrough hematite closes with buyers at 43s. 6d. cash, sellers ask 43s. 9d.

TAR AND AMMONIA PRODUCTS.

Benzol continues steady, prices being without alteration from last week. Solvent naphtha is fairly steady at 1s. 4d., while crude shows no change. The demand for crude carbolic continues satisfactory, and prices are well maintained. There is nothing fresh to report about Anthracene; while, for the present at all events, pitch still promises well, at full prices.

The value of Sulphate of Ammonia has, principally owing to the actions of speculators, declined during the week, the action of consumers at this time of the year having assisted the movements of "bears." Beckton and London outside makes are quoted at £13. 10s., the same value applying to Leith. At Hull sales at £13. 7s. 6d. are reported. Our previous remarks, however, must be borne in mind with regard to the above prices, as the real situation is healthy, and holders should be cautious how their judgment is influenced by ruling quotations.

WEST OF SCOTLAND CHEMICALS.

GLASGOW, TUESDAY.

According to all accounts, the sulphate of ammonia market was not affected by the settlement of the coal strike, at least to the extent of any fall in price. The settlement, however, probably prevented a further advance that otherwise would have taken place. By the close of the week prompt price was still steady at £13. 17s. 6d., with January to March delivery talked of at £14., and April to September at £13. 15s.

The market in general chemicals has continued to incline slightly to rather lower terms, bleaching powder and caustic soda being perhaps the most touched in that way. Caustic has had a plainly-marked fall in price of some shillings, and nitrate of soda is a fraction cheaper. The others, while nominally unchanged, are for the most part very quiet, and the tendency that way is now bound to be accentuated in this market till after the festive and holiday-making season is done with.

In mineral oils and paraffins the deliveries have become more leisurely since the coal strike was laid, but the outgoing is necessarily still large, and the outlook not so bad if only prices could be got up a little bit. Reports of partial exhaustion in some of the American petroleum fields are in favour of the Scotch industry, but require confirmation.

Chief prices current are:—Soda crystals £2. 10s. nett, Tyne; soda ash £3. 17s. 6d. nett, Tyne; white alkali 48/52° £4. 10s to £5. nett, Tyne; alum in lump £5. nett, Glasgow; caustic soda, white, 74° £10. 15s., 70/72° £9. 15s., 60/62° £8. 15s., and cream 60/62° £8. 10s., all nett, Liverpool; bleaching powder £7. 15s. to £8. nett, Tyne; saltcake, 22s. 6d.; borax, English refined, £30., and boracic acid, £37. 10s. nett, Glasgow; bicarbonate of soda, 5-cwt. casks, £6. 15s., and 1 cwt. casks £7. nett, Liverpool; bichromate of potash, 4½d. nett, for Scotch and English deliveries (for export, 4¼d. nett, f.o.b. Glasgow); bichromate of soda, 3¼d. nett, for Scotch and English deliveries (for export, 3½d. nett, f.o.b. Glasgow); chlorate of potash, 8¼d. less 5%, Liverpool; nitrate of soda, 9s. 3d.; sulphate of ammonia, £13. 17s. 6d. prompt, f.o.b. Leith; sal ammoniac, first and second white, £37. and £35. nett, any port; sulphate of copper, £15. 15s. less 5% Liverpool; paraffin scale, hard and soft, 1¾d. per lb.; paraffin wax 120° semi-refined 2¾d.; paraffin spirit (naphtha) 4½d. per gallon; paraffin oil, burning, standard No. 1 grade, 5d to 5¼d. at works, for Scotch buyers (English sales ½d. to ¾d. lower); ditto (lubricating) 865° £4. 7s. 6d. to £4. 10s., 885° £4. to £5. 10s., and 890/895° £5. to £6. Week's imports of raw sugar at Greenock were nil.

TYNE CHEMICAL REPORT.

TUESDAY.

Chemicals are only quiet, the approaching holidays having the usual effect upon trade. Caustic soda has been reduced in price, £9. 5s. being now the current rate for 70%, and £11. for 76/77%. Other articles remain unaltered.

Bleaching powder, softs, £7. 15s. per ton, nett; hards, £8. per ton, nett; caustic soda, 76/77%, £11. per ton, nett; 70%, £9. 5s. per ton, nett; recovered sulphur, 2 cwt. bags, £4. 5s. per ton, nett; soda ash, 48%, £3. 15s. per ton; 52%, £4. 2s. 6d. per ton; 56%, £4. 10s. per ton, nett; alkali, 36%, £3. per ton, nett; white alkali, 48%, £4. 10s. per ton; 50%, £4. 15s. per ton; 52%, £5. per ton, nett; hyposulphite of soda, in 5-7 cwt. casks, £7. per ton; ditto, in 1 cwt. kegs, £7. 15s. per ton, nett; silicate of soda, 75° Tw., £2. 15s. per ton, nett; 100° Tw., £3. per ton, nett; 140° Tw., £3. 17s. 6d. per ton, nett; soda crystals, in casks, £2. 10s. per ton gross weight; in 2 cwt. bags, £2. 10s. per ton nett weight; chlorate of potash, 8½d. per lb. less 6%; pearl hardening £3. per ton, nett; pure white sulphate of alumina, £4. 2s. 6d. per ton, nett; blanc fixe, £7. 10s. per ton, nett; chloride of barium, £7. 10s. per ton, nett; carbonate of alumina, £28. 15s. per ton, nett; aluminate of soda, £33. 15s. per ton nett; in 5 ton lots, £28. 10s. per ton, nett; hydrate of barium, £10. per ton, nett.

South Durham salt, 9s. to 9s. 6d. per ton net. f.o.b. Tees.

Coals: The market here is irregular, though there is still a good demand for prompt:—Best Northumbrian steam, 12s. to 13s. per ton; second qualities, 10s. 6d. to 11s. 6d.; small steam, 5s. 6d. to 6s.; bunker easier, 10s. to 10s. 6d.; gas coals 11s. to 12s.; coke very steady, 16s. For forward business prices are on the whole easier.

HULL PAINT, OIL, AND COLOUR REPORT.

TUESDAY.

OILS.—Trade here generally is improving, and the volume of business is fast assuming a normal condition, and in some instances even an improvement beyond. Some authorities have quite optimistic ideas for next year's trade. The exports of linseed oil show a considerable decrease, the total being only 773 cwt. against 3,576 cwt. for the same week a year ago. In cotton oil there was a substantial improvement, the shipments reaching a total of 11,631 cwt., against 4,371 cwt. a year ago. Resin, turpentine, and petroleum were each largely imported, the total of resin being 8,289 cwt., turpentine 1,803 cwt., and petroleum 1,132,563 gallons. Tallow also shows an improved import. Linseed oil remains quiet at 19s. 6d. naked spot; month is quoted at 19s. 3d., and Jan.-April or May-Aug. 19s. to 19s. 1½d.; Sep.-Dec. offers 18s. 9d. Refined cotton oil has advanced about 10s. per ton, owing no doubt to the increased demand for export; 18s. 6d. naked spot or for Dec.-April. Coast cod oil, £17. to £19. per ton. First pressure castor oil, 2¾d. per lb. Sod oil, £15. to £17. per ton. Engine and cylinder oils from 1s. to 2s. per gallon. Anti-friction greases from £6. per ton.

CAKES.—Linseed cakes a slow demand with the very mild weather, but prices keep firm; best makes 95% per cent. pure, £8. 15s.; ordinary, £7. 5s. to £7. 10s.; Russians, £8. 10s.; Polish, £8. 15s. Cotton cakes: A strong market, the demand being in excess of the

supply; best makes £5. 5s. spot, and £5. to £5. 2s. 6d. Jan.-April. Rape cakes: East India, £4. 10s. to £4. 12s. 6d.; Black Sea, £4. 5s.

PAINTS.—The firms engaged in the export business are fairly busy, but home trade remains quiet. The Hull exports are no criterion of the export trade of these articles, as much and often more being shipped from other ports. The exports during the week show a falling off both in painters colours and chemicals, the total of colours being 513 packages against 607 packages, and chemicals 1,186 packages against 7,030 packages. Oxide of iron, £9. to £18.; Venetian red, £5. to £10. per ton; oxide of zinc, £22. 10s. Lime blue from 16s. per cwt.; ochre, 60s., ex warehouse, per ton. Ready-mixed paints from 26s. Common black varnish, £5. 10s. per ton, barrels free. Oak varnish from 6s. per gallon.

New Companies.

Calthrop Bros., Limited.—CAPITAL, £10,000, in shares of £10. each. This company has been formed to carry on the business of dealers in feeding stuffs, oil-cakes, soaps, manures, &c., also to carry on the business of electrical engineers. The subscribers to the memorandum of association are:—E. R. Calthrop, Freshfield, Lancashire, civil engineer; M. Calthrop, Freshfield, Lancashire, married woman; A. Calthrop, Formby, Lancashire, married woman; F. A. Rockliff, Castle-street, Liverpool, stationer; R. E. Webster, Q.C., M.P., 2, Pump-court, London, E.C.; H. C. Calthrop, 133, Shooter's Hill-road, Blackheath, gentleman.

New Leeswood Spelter Company, Limited.—CAPITAL £20,000, in shares of £10. each. This company has been formed to purchase certain works belonging to the Leeswood Spelter Company, Limited, Flint, and to carry on the business of smelters and miners, and general metallurgical work. The subscribers to the memorandum of association are:—T. Cory, Swansea, colliery owner; T. Parry, Mold, colliery owner and merchant; G. Shaddick, Swansea, shipowner; J. R. Down, Swansea, merchant; J. R. Leaver, Swansea, civil engineer; F. R. Leaver, Pontblyddyn, clerk; J. H. Burgess, Swansea, shipowner.

Universal Electric Lighting Company, Limited.—CAPITAL £5,000, in shares of 10s. each. This company has been formed to produce, store, and distribute electricity, electro-motive force, &c. The subscribers to the memorandum of association are:—J. F. Rogers, 125, Penton-place, London, S.E., clerk; C. F. Croll, 8, St. Agnes-place, London, S.E., clerk; H. Gibbs, 65, Glyn-road, London, N.E., clerk; G. F. Wenborn, Tunbridge, Kent, clerk; W. J. Griffiths, 30, Albert-road, London, N., clerk; A. H. Clayton, 27, Borthwick-road, London, E., clerk; R. B. Webster, 3, Kendal Villas, London, S.E., clerk.

The Patent List.

This list is compiled from Official sources in the Manchester Technical Laboratory, under the immediate supervision of George E. Davis and Alfred R. Davis, who report professionally upon the value of Chemical Patents.

APPLICATIONS FOR ENGLISH LETTERS PATENT.

- New Colouring Bases and their Sulpho-Acids. C. D. Abel. 23,384. December 4.
 Colouring Matters Dyeing Blue with Mordants. C. D. Abel. 23,385. December 4.
 Non-Conducting Coverings. H. W. Johns. 23,378. December 5.
 Combined Ammeter and Voltmeter. E. W. Jewell and W. Zimmerman. 23,385. December 5.
 Process and Apparatus for Extracting Oil, etc., from Fibrous Plants and Their Like. W. T. Forbes. 23,387. December 5.
 Improvements in Glass-Rolling Machinery. N. M. Miller. 23,388. December 5.
 Colouring Matters. H. E. Newton. 23,392. December 5.
 Improved Detergent for Linen, etc. A. J. Boulton. 23,398. December 5.
 Casting Solid Ingots of Steel. W. P. B. Urlick. 23,425. December 5.
 Extracting Gold and Silver from Auriferous and Argentiferous Solutions. C. Raleigh. 23,431. December 5.
 Improved Oil Gas Apparatus. W. R. Herring. 23,437. December 5.
 Apparatus for Electrolytical Production of Soda and Chlorine. H. B. Lake. 23,436. December 5.
 Improvements in Steam Jets for Forced Draught Generators. G. M. Stonehouse and T. R. White. 23,443. December 6.
 Incandescent Gas Lamps. J. Ross. 23,445. December 6.
 Electrolytic Production of Oxygen and other Halogens. A. Cohen. 23,478. December 6.
 Hardening, or Converting into Steel, the Surfaces of Iron Plates, etc. E. T. Zohrab. 23,472. December 6.
 Boiler Explosion Preventer. P. L. Carman. 23,556. December 7.
 Colouring Matters for Unmordanted Fibres. J. Murray. 23,578. Dec. 7.
 Explosives. Hans R. Von Dahmen. 23,579. December 7.
 Colouring Matters derived from Anthraquinone. H. E. Newton. 23,581. December 7.
 Improvements in Oil and other like Presses. J. Y. Johnson. 23,587. December 7.

Preparation of Acetic and Oxalic Acids. Count H. P. Syberg. 23,662. December 8.
 Improvements in Rotary Blowers. C. Churchill. 23,683. December 8.
 Improvements in the Electro Deposition of Metals. T. B. Bates and A. E. Lee. 23,684. December 8.
 Apparatus for Filtering Liquids. A. H. Hobson. 23,694. December 8.
 Improved Apparatus for the Chemical or other Treatment of Sewage. F. Smith and F. W. Smith. 23,713. December 9.
 Enamelling or Glazing Tiles, etc. A. Maw, G. H. Maw, and B. Stuart. 23,753. December 9.
 Elimination and Recovery of Arsenic from Precipitate and other Cupreous Products. E. G. N. North. 23,770. December 9.

Gazette Notices.

BANKRUPTCY ACTS, 1883 and 1890.

Receiving Orders.

ASHWORTH, ROBERT, Littleborough (near Manchester), and Manchester, bleacher and dyer.

CRANSHAW, JAMES, Manchester, electrical engineer, etc.

Adjudication.

MARSDEN, EDWARD (trading as P. and E. Marsden). Bradford, soap boiler and manufacturing chemist.

IMPORTS OF CHEMICAL PRODUCTS

AT

THE PRINCIPAL PORTS OF THE UNITED KINGDOM.

LONDON.

Week ending December 9th.

Acetic Acid—

Holland, 156 pkgs. Beresford & Co.
 " 208 A. & M. Zimmermann

Acetone—

Germany, 3 pkgs. A. & M. Zimmermann

Alum—

Belgium, 20 pkgs. R. W. Greeff & Co.

Antimony—

France, 8 t. Vivian & Co.
 Portugal, 50 J. Bamber
 Sydney, 58 W. B. Marcus

Arsenic—

Germany, 40 pkgs. W. H. Mitchell
 " 40 Page, Son, & Co.

Asbestos—

Holland, 46 Philipps & Graves
 France, 12 Mory & Co.
 " 40 Van Geelkerken & Co.

Barium Chloride—

Germany, 24 pkgs. Petri Brs.

Barytes—

Holland, 228 pkgs. 200 sks. A. Zumbach & Co.
 Germany, 57 cks. D. Storer & Sons
 Belgium, 19 S. H. Willoughby
 " 23 R. Bew

Camphor—

Japan, 130 cs. G. S. N. Co.

Caoutchouc—

P. E. Africa, 13 c. Gray, Dawes, & Co.

France, 2

Hoare, Wilson, & Co.

E. Indies, 102

Huttenbach & Co.

Majumba, 30

S. Figgis & Co.

Madagascar, 67

Brookes & Green

Rangoon, 25

L. & I. D. Jt. Co.

E. Indies, 22

Prop. Bull. Wf.

Cartagena, 21

Carey & Browne

Germany, 7

B. & F. Wf. Co., Ltd.

Madagascar, 36

Procter Bros.

Castor Oil—

France, 32 pkgs. Beresford & Co.
 " 40 brls. J. T. Morton
 Belgium, 12 cs. Beresford & Co.
 " 9 brls. Fuerst Brs.

Caustic Potash—

France, 10 drs. Spies Brs. & Co.
 " 53 c. Petri Brs.

Chemicals (otherwise undescribed)

France, 412 Typke & King
 Germany, 190 pkgs. A. & M. Zimmermann

" 1

L. & I. D. Jt. Co.

" 3

T. H. Lee

Belgium, 4

Allan Bros. & Co.

Canada, 7

Craven & Co.

Germany, 10

Philipps & Graves

" 3 cks.

H. Lambert

France, 46

White Brs.

Copperas—

Germany, 55 pkgs. B. & N. Wf. Co., Ltd.

Cream of Tartar—

Spain, 10 cks. C. Christophersen & Co.
 " 2 12 pkgs. B. & F. Wf. Co., Ltd.
 " 4 pkgs. W. C. Bacon & Co.

Dextrine—

Germany, 30 pkgs. P. Windmuller & Co.
 " 123 Pronk, Davis, & Co.
 " 20 Ohlenschlager Brs.

Dyestuffs—

Holland, 331 pkgs. Burt, Boulton, & Co.

Anthracene

Cutch Rangoon, 50 pkgs. J. Watson & Co.

" 1,000

Leach & Co.

Germany, 18

Hoare, Marr, & Co.

Extracts

Austria, 73 pkgs. S. H. Rowntree
 W. Australia, 1 F. Green & Co.
 Belgium, 20 L. J. Levinstein & Sons

France, 110

Prop. Chmbln's Wf.

" 40

T. H. Lee

Belgium, 100

Prop. Hay's Wf.

Gambier

E. Indies, 535 pkgs. Brown & Elmslie

" 222

W. France & Co., Ltd.

" 879

Beresford & Co.

" 252

R. & J. Henderson

Indigo

E. Indies, 49 chts. R. von Glehn & Sons

" 48

L. & I. D. Jt. Co.

" 75

P. Macfadyen & Co.

" 6

Walker, Munzie, & Co.

" 15

H. Johnson & Sons

" 10

E. Bower & Co.

" 68

Parry & Co.

" 28

Croysdale & Co.

" 25

Arbuthnot, Latham, & Co.

Aden, 25

Forbes, Forbes, & Co.

Germany, 2

L. & I. D. Jt. Co.

Logwood

Trinidad, 3 t. Malcolm, Kearton, & Co.

Saffron

Spain, 2 pkgs. Richardson, Spence, & Co.

" 2 2 cs.

Middleton

" 1

S. S. Wf. Co.

" 1

B. & N. Wf. Co., Ltd.

" 2

H. R. Boyer

Sumac

Spain, 50 pkgs. G. Kenyon

Tanner's Bark

Melbourne, 47 t. Leach & Co.

Belgium, 28

"

Turmeric

E. Indies, 22 pkgs. Beresford & Co.

Valonia

A. Turkey, 50 t. A. & W. Nesbitt

" 40

Anning & Cobb

" 32

Marshall & French

" 1

F. W. Honischer

Dyestuffs (otherwise undescribed)

Ceylon, 36 pkgs. Hoare, Wilson, & Co.

Farina—

Germany, 50 pkgs. C. Tennant, Sons, & Co.

Holland, 150

J. Barber & Co.

" 150

Seaward Brs.

" 100

Ohlenschlager Brs.

Glucose—

Belgium, 50 pkgs. 100 c. B. & N. Whvs. Co., Ltd.

France, 200

200 c. Barrett, Tagant, & Co.

U. States, 1,190

1,190 L. & I. D. Jt. Co.

" 20

1,129 Prop. Scott's Wf.

" 1,050 pkgs. 1,300 c. Fellows, Morton, & Co.

" 1,000 1,000 Beresford & Co.

" 1,810 1,810 J. Barber & Co.

" 1,500 1,500 Thames S. T. & L. Co.

" 50 275 Pillow, Jones, & Co.

" 150 825 T. M. Duché & Sons

" 189 1,037 Beck & Pollitzer

" 5,650 8,517 L. Sutro & Co.

" 3,770 3,943 R. G. Hall & Co.

" 30 165 Union L. Co., Ltd.

Germany, 13 106 M. D. Co.

" 200 200 J. Barber & Co.

Guano—

Lobos, 1,400 t. Anglo Contl. G. Wks.

Hyposulphite—

Holland, 200 pkgs. Beresford & Co.

Magnesia—

Holland, 50 pkgs. Beresford & Co.

Magnesium—

Germany, 1 pkge. D. W. Greenhough & Son

Manure—

Melbourne, 120 t. Goad, Rigg, & Co.

Methyl Alcohol—

Holland, 21 dms. Stein Brs.

Mica—

Canada, £510 E. Davis & Co.

Adelaide, 30

W. M. Smith & Sons

Naphtha—

Germany, 10 cks. L. & I. D. Jt. Co.

Ochre—

Spain, 5 cks. Wilkinson, Heywood, & Co.

" 25 brls.

Burrell & Co.

Holland, 7 cs. 29 pkgs.

Philipps & Graves

France, 83 cks.

W. Harrison & Co.

" 94

T. Cartwright

Spain, 1

F. A. Hodgkinson & Co.

Paraffin Wax—

U. States, 193 brls. Mordaunt Brs.

" 825 cs.

H. Hill & Sons

U. States, 4,818

J. H. Usmar & Co.

Phosphate Rock—

Belgium, 5 t. Hammond & Co.

" 50

Lawes Manure Co.

Holland, 50

Coml. Lightgr. Co.

France, 2,000

A. Hunter & Co.

" 245

Anglo-Contl. G. Wks.

Pitch—

France, 24 cks. Poth, Hille, & Co.

Plumbago—

Rangoon, 3 cs. G. W. Wheatley & Co.

" 71 cks.

B. Gallaway

Holland, 5

Lentz & Kesel

Germany, 123

R. G. Hall & Co.

Ceylon, 70 brls.

Doulton & Co.

Germany, 2

Scruttons & Co.

" 20

B. Gallaway

Potash—

Canada, 63 c. Charles & Fox

France, 200

F. W. Berk & Co. Ltd.

Potash Salts—

Germany, 50 cks. J. Matton
" 500 Soundy & Sons
" 100 pkgs. Prprs. Dowgate
Dk.

LIVERPOOL.

Week ending December 7th.

Acetic Acid—
Rouen, 4 cbys. Co-op. W'sale
Society, Ltd.

Alumina Sulphate—
Rotterdam, 25 cks.

Ammonium Sulphate—
Marseilles, 9 brls.

Antimony—
Antofagasta, 176 bgs. A. Gibbs & Son

Bone Ash—
B. Ayres, 800 bgs. Williamson
Milligan

Bone Meal—
Bombay, 2,000 bgs.

Borate of Lime—
Antofagasta, 725 bgs. D. Maclean
& Co.

Castor Oil—
Marseilles, 34 cks. 286 brls. 37 cs.

Chemicals (otherwise undescribed)
Rouen, 21 cks. Co-op. W'sale
Society, Ltd.

Chrome Iron Ore—
Rotterdam, 22
Baltimore, 24 cks. P. R. M'Quie
& Sons

Chrome Ore—
Pt. Jackson, 1,624 bgs. A. M. Smith
& Co.

Colours—
Hamburg, 5 cks. 2 brls.
Halifax, N.S., 4 Goodlass,
Wall & Co.

Cream of Tartar—
Rotterdam, 21 21 cs.
Marseilles, 10 kgs.
Barcelona, 1 ck. F. & L. Litzler
8

Dyestuffs—
Cochineal
Gr. Canary, 20 bgs. J. Jacoby
" 10 Widow Duranty
& Son

Extracts
Ghent, 100 cks. J. T. Fletcher
& Co.

Bordeaux, 100
Marseilles, 8
Fiume, 150 brls. Oak Extract
Co.

Nantes, 535 Boucher, Bacon
& Co.

Fustic
Savanna, 2,682 lbs. G. H. Muller
& Co.

Carthagena, 1,924 ps. Widow Duranty
& Son

Gambler
Singapore, 241 bgs. 445 brs.

Logwood
Belize, 7½ c. 150 t. Merchant Shippers
Co.

Madder
Marseilles, 13 brs.

Saffron
Valencia, 5 cs.

Shumac
Fiume, 20 bgs.

Farina—
Hamburg, 876 bgs.

Glucose—
Hamburg, 76 cks.
New York, 349 brls.

Guano—
B. Ayres, 1,657 bgs. Williamson,
Milligan

Lead Acetate—
Hamburg, 17 cks.
Rotterdam, 17

Manganese—
Carrizal, qty.

Mineral White—
Trieste, 100 bgs. E. & F. Fanta
70

Nitrate—
Rotterdam, 4 cks.

Ochre—
Bordeaux, 12 cks.
Marseilles, 19

Paint—
Dunkirk, 6 cks.

Paraffin Scale—
Philadelphia, 300 brls.
New York, 1,443 Thompson &
Bedford.

Baltimore, 189
Phosphate Rock—
Brunswick, Ga., 754 t.

Pitch—
Dunkirk, 61 cks.
Hamburg, 3 cs.

Plumbago—
Genoa, 80 bgs.

Potash—
Hamburg, 10 cks.
Dunkirk, 2 10 dms.
Rotterdam, 1

Potash Salts—
Hamburg, 4,150 bgs.

Potassium Chlorate—
Gr. Canary, 20 brls. E. H. Perrin
& Co.

Pyrites—
Huelva, 2,651 t. Matheson & Co.

Saltpetre—
Hamburg, 26 cks. 85 kgs.
Rotterdam, 170 bgs.

Soap—
Marseilles, 7 cs. Cox Brs.
Bari, 49 135 bxs.
Boston, 340 brls. D. Solomon
Son & Co.

Soapstone—
Fiume, 100 bgs.

Sodium Nitrate—
Antofagasta, 8,170 bgs. Balfour,
Williamson & Co.

Sodium Silicate—
Rotterdam, 1 ck.

Starch—
Hamburg, 840 cs.
Rotterdam, 225
Philadelphia, 12 bgs. J. Howard
& Co.

Baltimore, 800
Marseilles, 800

Stearine—
Marseilles, 27 bgs.
Boston, 100 tcs. G. & J. Nickson
& Co.

Sulphur Ore—
Huelva, 1,429 t. Matheson & Co.

Tallow—
Philadelphia, 250 tcs.
Boston, 5 67 hhd.
Hamburg, 1 ck.

Tartar
Bordeaux, 7 cks.

Tartaric Acid—
Rotterdam, 64 cks. 10 kgs.
Marseilles, 4 Sache & Klemm
12

Ultramarine—
Rotterdam, 6 cks. 77 cs.

Yarnish—
New York, 3 cs. Larrinaga & Co.

Verdigris—
Bordeaux, 4 cks.

Waste Salt—
Hamburg, 1,624 bgs.

White Lead—
Rotterdam, 39 cks.
Terneuzen, 6
Trieste, 2 cs. Mander Bros.

Zinc Ashes—
Marseilles, 23 cks.

Zinc Oxide—
Terneuzen, 99 brls. J. T. Fletcher
& Co.

Rotterdam, 140 cks.
Zinc Skimmings—
Baltimore, 30 brls. 170 bgs.

Zinc White—
Hamburg, 21 cks.

HULL.

Week ending December 9th.

Alum—
Hamburg, 1 ck. Bailey &
Leatham

Asbestos—
Genoa, 1 cs. Wilson, Sons,
& Co., Ltd.

Barytes—
Antwerp, 22 cks. Wilson, Sons,
& Co., Ltd.

Rotterdam, 31 Hanger, Watson
& Harris

Rotterdam, 10 cks. Greaves & Co.
Antwerp, 43 50 bgs. Bailey &
Leatham

Bremen, 57 103
Rotterdam, 96 Blundell, Spence,
& Co.

Boracic Acid—
Leghorn, 208 cks. Wilson, Sons,
& Co., Ltd.

Chemicals (otherwise undescribed)
Antwerp, 336 pkgs. Wilson, Sons,
& Co., Ltd.

Bremen, 5 pkgs. Veltmann
& Co.

Dunkirk, 34 cks. 59 pkgs. Wilson,
Sons, & Co., Ltd.

Colours—
Hamburg, 1 ck. 20 cs. Wilson, Sons,
& Co., Ltd.

Antwerp, 69 cks.
Rotterdam, 4 12 pkgs. W. & C. L.
Ringrose

" 1 cs. 5 11 G. Lawson &
Sons

Flushing, 11
" 5 3 3 Brach &
Rocheinstein

Bremen, 1 Veltmann & Co.
Danzig, 5
Rotterdam, 2 16 brls. 5 Hutchinson &
Son.

Flushing, 3 15 cks.
New York, 600 brls. Wilson, Sons,
& Co., Ltd.

Cryolite—
Copenhagen, 1 ck. Wilson, Sons,
& Co., Ltd.

Dextrine—
Stettin, 70 bgs.
Hamburg, 94 Wilson, Sons,
& Co., Ltd.

Dyestuffs—
Allizarine
Rotterdam, 26 pkgs. W. & C. L.
Ringrose

" 9 brls. Hutchinson &
Son

Logwood
Hamburg, 90 bgs. 208 pcs. Wilson,
Sons, & Co., Ltd.

Madder
Rotterdam, 1 ck. J. Pyefinch & Co.

Myrabolams
Bombay, 2,854 bgs.

Sumac
Limassol, 1,200 bgs.
Palermo, 900 Wilson, Sons,
& Co., Ltd.

Valonia
Smyrna, 105 t.

Dyestuffs (otherwise undescribed)
New York, 50 cs.

Farina—
Stettin, 467 bgs. Wilson, Sons,
& Co., Ltd.

Harlingen, 750
Hamburg, 400 100 brls. "

Glucose—
Stettin, 13 cks. Wilson, Sons,
& Co., Ltd.

375 bgs.
New York, 250 brls.

Mica—
Christiania, 3 cs. Wilson, Sons,
& Co., Ltd.

Nitrate—
Rotterdam, 4 cks. W. & C. L.
Ringrose

Ochre—
Marseilles, 36 cks. Wilson, Sons,
& Co., Ltd.

Paint—
Boston, 35 cs. Wilson, Sons,
& Co., Ltd.

New York, 50 2 kgs. "
Paraffin Scale—
Hamburg, 29 brls. Wilson, Sons,
& Co., Ltd.

Phosphate—
St. Valery, 276 t.

Pitch—
Rotterdam, 132 cks. G. Lawson &
Sons

Pumice Stone—
Leghorn, 6 cs. 20 cks. 35 pkgs. 40 bgs.
Wilson, Sons, & Co., Ltd.

Messina, 307 pkgs. 10 bgs. "
Saltpetre—
Hamburg, 20 cks. 9 kgs. Wilson,
Sons, & Co., Ltd.

Silica—
Christiania, 1 bx. Wilson, Sons,
& Co., Ltd.

Soap—
Rotterdam, 11 cks. W. & C. L.
Ringrose

Marseilles, 4 cs. Wilson, Sons,
& Co., Ltd.

" 2

Soda—
Rotterdam, 12 cks. G. Lawson
& Sons

Marseilles, 8 pkgs. Wilson, Sons,
& Co., Ltd.

Sodium Nitrate—
Hamburg, 200 kgs. Wilson, Sons,
& Co., Ltd.

Starch—
Rotterdam, 120 cs. Jarman & Flint
429

Bremen, 863 Veltmann & Co.

Stearine—
Amsterdam, 124 bgs. Wilson, Sons,
& Co., Ltd.

Sulphur—
Catania, 50 t. 1,453 pkgs. Wilson, Sons,
& Co., Ltd.

" 50 30 brls.

Talc—
Genoa, 100 bgs. Wilson, Sons,
& Co., Ltd.

Tallow—
Antwerp, 64 pkgs. Wilson, Sons,
& Co., Ltd.

Boston, 20 hhd.
New York, 5 cs. "

Turpentine—
Libau, 101 cks.

Yarnish—
New York, 7 pkgs. Wilson, Sons,
& Co., Ltd.

Waste Salt—
Hamburg, 50 t. 508 bgs.

Waste Tar—
Rotterdam, 5 cks. W. & C. L.
Ringrose

White Lead—
Rotterdam, 10 cks. Storry, Witty,
& Co.

Antwerp, 87 Bailey &
Leatham

Rotterdam, 18 Sissons Bros. & Co.

Zinc Oxide—
Hamburg, 8 cks. C. M. Lofthouse
& Co.

Rotterdam, 25 Hutchinson & Son
25 Sissons Brs. & Co.

GLASGOW.

Week ending December 14th.

Arachide Oil—
Rotterdam, 6 brls. J. Rankine &
Son

Barytes—
Rotterdam, 171 cks.

Bone Meal—
Bombay, 3,000 bgs.

Carbonic Acid—
Rotterdam, 50 tubes J. Rankine
& Son

Castor Oil—
Marseilles, 136 brls. 16 pkgs.

Colours—
Hamburg, 5 cs. 87 cks.
Rotterdam, 3 11 J. Rankine
& Son

" 14
Cream of Tartar—
Marseilles, 16 cks.

Dyestuffs—
Allizarine
Rotterdam, 3 brls. 52 cks.
J. Rankine & Son

" 41 cks.
Extracts
Baltimore, 10 brls. P. Wright
& Co.

Marseilles, 5
Madder
Rotterdam, 1 ck. J. Rankine
& Son

Myrabolams
Bombay, 1 bx.

Farina—
Hamburg, 100 bgs.
Delfsryhl, 470

Glucose—
New York, 200 brls.

44 brls.	Zinc Sulphate— Hamburg, 1 ck. Rotterdam, 27 bgs. J. Rankine & Son	GOOLE. <i>Week ending December 6th.</i> Acetic Acid— Rotterdam, 10 cbys. Alkali— Calais, 20 cks. Alum— Rotterdam, 5 cks. Antwerp, 5 Caoutchouc— Boulogne, 4 cks. Dyestuffs— Alizarine Rotterdam, 227 pkgs. Indigo Rotterdam, 8 cbts. Dyestuffs (otherwise undescribed) Boulogne, 7 cks. 19 cs. Ghent, 6 Farina— Hamburg, 3,599 bgs. Delfsryhl, 1,904 Lead Acetate— Rotterdam, 17 cs. Hamburg, 31 cks. Phosphate— Ghent, 1,500 bgs.	Potash— Dunkirk, 4 cks. 91 dms. Saltpetre— Rotterdam, 100 bgs. Hamburg, 5 cks. Size— Boulogne, 2 cks. Tannic Acid— Rotterdam, 15 cks. Waste Salt— Hamburg, 197 cks.
20 cks.	Zinc White— Rotterdam, 100 cks. J. Rankine & Son		GRIMSBY. <i>Week ending December 9th.</i> Albumen— Hamburg, 15 pkgs. Chemicals (otherwise undescribed) Hamburg, 25 pkgs. 14 cks. Dyestuffs (otherwise undescribed) Dieppe, 5 cks. Farina— Hamburg, 240 bgs. Size— Antwerp, 12 pkgs. Zinc Ashes— Antwerp, 9 cks.
Scale— phia, 805 brls.	TYNE. <i>Week ending December 9th.</i> Alum Earth— Hamburg, 51 cks. Tyne S. S. Co. Barytes— Rotterdam, 46 cks. Colours— Hamburg, 100 cks. Tyne S. S. Co. Limestone— Antwerp, 1 cs. Tyne S. S. Co. Salt— Hamburg, 505 bgs. Tyne S. S. Co. Saltpetre— Han burg, 3 cks. Tyne S. S. Co. Starch— Antwerp, 20 cs. Tyne S. S. Co. Amsterdam, 1 bg White Lead— Antwerp, 28 brls. Tyne S. S. Co. Zinc Oxide— Antwerp, 15 brls. Tyne S. S. Co.		
65 cks. J. Rankine & Son			
am Carbonate— g, qty.			
1 cs.			
phia 350 bxs. 38 crts.			
rk, 900 bxs.			
am, 72 cs.			
e, 125 sks.			
325 t. Seville Sulphur & Copper Co., Ltd.			
e, 250 tcs.			
45 J. Rankine & Son			
ck, 112 brls. 1 cs.			
de—			
am, 50 cks. J. Rankine & Son			

EXPORTS OF CHEMICAL PRODUCTS

OF

THE PRINCIPAL PORTS OF THE UNITED KINGDOM.

LONDON. <i>ending December 13th.</i>	Borax— Sydney, 20 kgs. 1 t. 6 c. Genoa, 2 3 Gibraltar, 6 cks. 13 Hamburg, 6 8 Natal, 11 cs. 20 Brewers' Crystals— Madras, 2 cks. 60 Carbolic Acid— Melbourne, 8 c. 10 Berbice, 8 8 Lyttelton, 1 t. 19 40 Trepot, 160 cns. 169 Hiogo, 4 9 200 Carbon Bisulphide— B. Ayres, 125 dms. 674 Caustic Soda— Lyttelton, 2 t. 7 c. 630 Chemicals (otherwise undescribed) Barbadoes, 1 cs. 16 Jamaica, 16 pkgs. 89 Rio de Janeiro, 4 c. 13 Melbourne, 2 cs. 1 ck. 13 Cape Town, 2 5 37 Adelaide, 8 jars 10 kgs. 58 Brisbane, 5 11 Boulogne, 1 40 Cologne, 2 t. 9 45 Dunedin, 4 8 cks. 149 dms 191 Auckland, 37 pkgs. 54 E. London, 6 22 Citric Acid— Bombay, 8 c. 674 Bermuda, 1 9 Melbourne, 10 78 Rotterdam, 2 kgs. 16 Hamburg, 6 45 Yokohama, 1 9 Boulogne, 3 25 Cape Town, 2 12 Algoa Bay, 5 cks. 40 Beyrout, qty. 8 B. Ayres, 1 8 Fremantle, 1 9 Coal Products— Alizarine New York, 50 cks. 660 Bombay, 50 kgs. 150 Aniline Bombay, 4 cs. 627 Sydney, 1 9 Melbourne, 2 66 Boulogne, 2 cks. 57 Riga, 1 10 Aniline Oil Genoa, 16 dms. 6500 Rotterdam, 18 550 Aniline Salts Danzig, 14 kgs. 660	Benzol Rotterdam, 20 cks. 6145 Boulogne, 30 275 Hamburg, 36 pns. 25 dms. 555 Trepot, 12 120 Naphtha Trepot, 50 brls. 6125 Naphthalene Hamburg, 8 cks. 653 Pitch Gijon, 170 t. 6271 Cette, 1,111 2,008 Christiania, 100 fkins. 30 Ghent, 579 786 St. Malo, 537 723 Philadelphia, 1,600 bgs. 289 Boston, 700 cks. 309 Dunkirk, 512 689 Tar Boston, 100 cks. 642 St. Helena, 8 hf.-brls. 6 Melbourne, 20 brls. 15 Algoa Bay, 320 dms. 19 Tar Salts Algoa Bay, 6 dms. 630 Toluol Rotterdam, 24 rns. 50 brls. 6253 Copper Sulphate— E. London, 9 c. 68 Constantinople, 1 t. 7 19 Sydney, 2 31 Algoa Bay, 18 13 Pt. Elizabeth, 8 7 M. Video, 5 13 85 B. Ayres, 2 32 Odessa, 5 1 80 Cream of Tartar— Cairno, 2 c. 67 Sydney, 2 t. 5 160 Algoa Bay, 2 7 Bundaberg, 5 18 Townsville, 4 15 Auckland, 10 42 Hobart, 2 10 Adelaide, 3 5 236 Melbourne, 3 10 251 Dunedin, 18 74 Disinfectants— Santos, 10 c. 616 Adelaide, 4 cs. 20 Vancouver, 10 dms. 12 Disinfectants and Borax— Algoa Bay, 13 pkgs. 623 Hydrochloric Acid— Cape Town, 16 cs. 616 Trinidad, 1 t. 12 c. 8 Iron Sulphate— Oporto, 20 t. 670 Manure— Berbice, 38 t. 6405	Demerara, 100 t. 1,055 Cape Town, 71 19 c. 414 St. Vincent, 31 2 280 Genoa, 2 8 Malaga, 6 60 Havre, 20 220 Metallic Sodium— New York, 2 t. 20 cs. 891 Muriatic Acid— Oporto, 15 c. 65 Nitric Acid— Sydney, 3 c. 67 Melbourne, 3 cs. 9 Oxalic Acid— Melbourne, 1 t. 638 Lisbon, 8 c. 11 Phosphate— Demerara, 20 t. 653 Oporto, 45 90 Phosphorus— Rio de Janeiro, 2 c. 627 Wellington, 4 53 Port Chalmers, 4 53 Potash Salts— Townsville, 4 t. 19 c. 6609 Normanton, 4 12 556 Potassium Chlorate— Bombay, 13 c. 654 Calcutta, 10 Potassium Cyanide— Townsville, 1 c. 610 Potassium Iodide— Durban, 6 cs. 632 Potassium Permanganate— Odessa, 1 t. 665 Pyrogallie Acid— Yokohama, 11 c. 642 Montreal, 3 cs. 13 Saltcake— Antwerp, 170 t. 6298 Saltpetre— Sydney, 2 t. 10 c. 656 Algoa Bay, 9 10 Melbourne, 3 66 M. Video, 1 3 23 Lyttelton, 10 12 Dunedin, 5 6 Rio Grande do Sul, 17 19 Sheep Dip— B. Ayres, 1,000 cs. 370 dms. 65,225 Cape Town, 3 t. 100 Algoa Bay, 1,100 154 E. London, 9 8 c. 427 New York, 20 8 Lyttelton, 300 cs. 1,500 Pt. Elizabeth, 500 750
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Soda—			
Guernsey, 1 t. 3 c.	£5		
Soda Alkali—			
Boston, 2 t. 8 c.	£36		
Soda Crystals—			
Colombo, 14 c.	£6		
Newcastle, 25 t. 1	68		
Sydney, 50 2	135		
B. Ayres, 1	3		
Soda Salts—			
Toronto, 10 cs.	£132		
Sodium Amalgam—			
Natal, 1 cs.	£10		
Sodium Bicarbonate—			
Lytelton, 1 t.	£8		
Cape Town, 1 6 c.	12		
Sodium Carbonate—			
E. London, 10 c.	£8		
Auckland, 1 t.	8		
Natal, 9	7		
Sodium Oxide—			
New York, 1 t. 2 c.	£168		
Sodium Tartrate—			
Melbourne, 5 cs.	£17		
Strontium Nitrate—			
Bombay, 13 c.	£22		
Sulphuric Acid—			
Algoa Bay, 20 cs.	£28		
Cape Town, 1 t. 10 c.	14		
E. London, 10	8		
Penang, 30	24		
Superphosphate—			
Mauritius, 148 t. 14 c.	£595		
Martinique, 400 1	1,200		
Oporto, 38 5	125		
Tartaric Acid—			
Bombay, 4 c.	£26		
Melbourne, 1 t. 15	164		
Sydney, 1 10	143		
Dunedin, 6	32		
Odesa, 1 10	147		
Wellington, 3	19		
Algoa Bay, 2 cs.	13		

LIVERPOOL.

Week ending December 13th.

Alum—			
Guayaquil, 4 t. 2 c.	£18		
Seville, 5 2 q.	25		
Volo, 2 13 2	17		
Melbourne, 5	27		
Havana, 6 16	25		
Ammonium Carbonate—			
Rotterdam, 13 c. 2 q.	£23		
Stockholm, 1 6	44		
Antwerp, 15	28		
Ammonium Chloride—			
Smyrna, 6 c.	£10		
Bilbao, 3 3 q.	10		
Antwerp, 1 t. 2 1	28		
Alexandria, 3	105		
Philadelphia, 9 2	196		
Malta, 4	7		
Volo, 13 1 24	24		
Beyroul, 1 2 2	40		
Ammonium Sulphate—			
Sourabaya, 205 t. 1 c. 2 q.	£3,000		
Malaga, 50	700		
Rotterdam, 10	130		
Nantes, 25 9	330		
Asbestos—			
Gijon, 15 bgs.			
Havre, 1 cs.			
Penang, 2 pkgs.			
Bleaching Powder—			
Bombay, 5 cs.			
Genoa, 35 cks.			
Melbourne, 67	182		
New York, 31			
Philadelphia, 29			
San Sebastian, 5 c.	£7		
Hong Kong, 1 t. 2 c.	£44		
Havre, 8 14 1 q.	280		
Borax—			
Halifax, 8 12 1 q.	£12		
Hamburg, 6 t. 12 3	203		
Havana, 1 3	32		
Havre, 5 2	10		
Calcium Chloride—			
Durban, 5 t. 1 c.	£12		
Carbolic Acid—			
Yokohama, 6 t.	£278		
Hamburg, 9 12	101		
Rotterdam, 30	1,183		
Genoa, 1 14	54		
Caustic Potash—			
Hamilton, 8 c.	£9		

Caustic Soda—			
Ceara, 30 dms.			
Hamilton, 2 brls.			
Hong Kong, 7 8 cks.			
La Guayra, 10			
Melbourne, 10 cts.			
New York, 100			
Pelotas, 50			
Philadelphia, 18			
Pimental, 40			
Rosario, 20			
Rouen, 36			
Sagua la Grande, 32			
Chemicals (otherwise undescribed)			
Odesa, 10 c.	£17		
Havana, 4	7		
Constantinople, 10	17		
Rotterdam, 6 1 q.	10		
Mersyne, 10	17		
Smyrna, 16	27		
Calcutta, 3 t.	105		
Philadelphia, 25 19	701		
Chloroform—			
Vera Cruz, 2 cs.			
Citric Acid—			
Gr. Canary, 2 c. 1 q.	£13		
Coal Products—			
Aniline Salts			
Bombay, 1 ck.			
Piraeus, 25 brls.			
Pitch			
Valparaiso, 5 brls.			
Tar			
Turin, 20 bxs.			
Cobalt Oxide—			
Valencia, 1 cs. 2 c. 3 q.	£97		
Copperas—			
Bourgas, 3 t.	£6		
Piraeus, 7 1 c. 2 q.	10		
Sydney, 5 1	10		
Syria, 2 14 2	5		
Genoa, 29 cks.	9		
Kurrachee, 7 5	14		
Copper Sulphate—			
Seville, 10 1 q.	£150		
Rouen, 10	160		
Genoa, 1 10 c. 1	22		
Christiania, 1 1	16		
Leghorn, 10 1	150		
Iquique, 5 1	78		
Volo, 5 1	4		
Antwerp, 4 18 1	75		
Lisbon, 3 1	45		
Bombay, 2 1	35		
Melbourne, 16 10	265		
Marseilles, 199 8 2	3,200		
Catania, 2 11	3		
Piraeus, 17 3	13		
Bordeaux, 157 11	2,177		
Nantes, 4 19	80		
Cream of Tartar—			
St. John's, N. I., 5 c.	£17		
Disinfectants—			
Calcutta, 2 cs. 6 c.	£13		
Gypsum—			
New York, 36 t.			
Iron Chromate—			
Antwerp, 2 t. 11 c. 1 q.	£30		
Hamburg, 1 1	27		
Iron Oxide—			
B. Ayres, 1 t. 5 c. 3 q.	£14		
Lead Acetate—			
Havana, 5 c.	£7		
Lime—			
Sierra Leone, 4 t.	£8		
Magnesia—			
Algoa Bay, 10 c. 3 q.	£21		
Manganese Oxide—			
Antwerp, 4 t. 19 c. 3 q.	£56		
Dunkirk, 3 brls.			
Manure—			
New York, 2 t. 15 c.	£95		
Ochre—			
Kingston, Jam., 10 brls.			
Oxalic Acid—			
Bilbao, 5 c.	£8		
Lisbon, 1 t.	30		
Paint—			
Campana, 64 pkgs			
C. C. Castle, 20 kg			
Gibraltar, 9			
Havana, 10 cks.			
Havre, 4			
Hong Kong, 20 dms.			
M. Video, 14 cks. 15 cs.			
Ponce, 1			
Sandakan			

Painters' Colours—			
Adelaide, 9 kgs 2 cks.			
Amsterdam, 11 10 dms.			
Barcelona, 60 1 cs.			
Belize, 112			
Bombay, 112			
Cape Town, 10			
Halifax, 10 brls.			
Loanda, 9			
Nassau, 2 62 pkgs.			
Oporto, 1 cs.			
Para, 9 8 2			
Pernambuco, 55			
Pt. Natal, 24 3			
Rosario, 54 pkgs.			
St. John's, N. F., 8 3			
St. Thome, 15			
Salora, 2 1			
San Juan, 22 8			
Seville, 1 cs.			
Trinidad, 3 pkgs.			
Valparaiso, 10			
Yokohama, 6			
Potash Salts—			
San Francisco, 1 t. 7 c.	£27		
Potassium Bichromate—			
Volo, 7 c.	£16		
Alexandretta, 4	6		
Antwerp, 1 4	48		
Potassium Chlorate—			
Calcutta, 10	36		
Genoa, 2 t. 10	144		
New York, 16 5	971		
Copenhagen, 15	49		
Yokohama, 5 10	317		
Higo, 10	600		
Sydney, 5	304		
Alexandria, 5	19		
Precipitated Chalk—			
Rouen, 1 t.	£16		
Salt—			
Abonnema, 20 t.			
Antwerp, 264			
Bahtee, 8 18 c.			
Black Point, 6			
Cameroon, 16 14			
Christiania, 25			
Copenhagen, 520			
Frederica, 695			
Freemantle, 48			
Ghent, 150			
Hamburg, 100			
Landana, 34			
New York, 260			
Opobo, 25			
Para, 602 5			
Philadelphia, 39			
Rangoon, 2,444			
Rio del Rey, 30			
Rotterdam, 202			
St. John's, N. B., 100			
Sulimah, 50			
Saltpetre—			
Valparaiso, 5 t. 16 c.	£131		
Ceara, 1 25 2 q.	44		
Para, 18 15	406		
Sheep Dip—			
M. Video, 2 t.	£20		
B. Ayres, 13 c. 2 q.	25		
Size—			
Messina, 30 cks.			
Rotterdam, 10			
Soap—			
Acera, 374 bxs.			
Antwerp, 200			
Assinee, 20			
Axim, 1 cs.			
Barbadoes, 250			
Batavia, 2,101			
Belize, 800			
Bilbao, 1			
Bombay, 5 8 cks.			
Bonny, 112			
Brussels, 412			
Cameroon, 56			
C. C. Castle, 380			
Christiania, 236			
Colombo, 50			
Conakry, 80			
E. London, 100			
Elmina, 50 6			
Gaboon, 270			
Hong Kong, 250 20			
Iquique, 6			
Las Palmas, 510			
Lima, 1			
Loanda, 100			
Madras, 100 6			
Malta, 26			
Manaos, 1,300			
Monrovia, 72			
New York, 500 175 pkgs.			
Old Calabar, 250			
Para, 100 1			
Penang, 10			

Philadelphia,	46 bxs.		
Piræus,	90		
Pt. Natal,	50		
Quitta,	40		
Rio del Rey,	100		
St. John's, N.F.,	950		
Shanghai,	2,350		
Sierra Leone,	237		
Singapore,	72		
Trinidad,	300		
Soda Alkali—			
Leghorn,	100 brls.		
Para,	300		
Salonica,	35		
Sydney,	110		
Soda Ash—			
Baltimore,	103 cks.	400 bgs	
Barcelona,	13		
Batavia,		5 brls.	
Boston,	43		600
B. Ayres,	250		
Genoa,			200
Montreal,			600
Nagasaki,		9	
New York,	140		2,816
Pelotas,		50	
Philadelphia,			1,904
Pittsburg,	34		
Rio de Janeiro,		50	
San Francisco,			166
Smyrna,		100	
Stockholm,			10
Sydney,	101	57	
Talcahuano,	10		
Soda Crystals—			
Calcutta,		68 kgs.	
Montreal,		25	50 cks.
Pernambuco,		100 brls.	
Philadelphia,			305
Samarang,			50
Soda Salt—			
Rouen,		200 bgs.	
Sodium Biborate—			
Algoa Bay,		80 kgs.	
B. Ayres,		125 cs.	
M. Video,		2 brls.	
Portland, Me.,		13	
Sodium Bicarbonate—			
Bombay,		40 kgs.	
Bourgas,		20	
B. Ayres,		120	18 cks.
Calcutta,		100	
Genoa,		50	12
Halifax,		100	
Havre,		34	
M. Video,		100	
Montreal,		150	
Odesa,		110	
Para,			10 bds.
Piræus,		20	
Rotterdam,		20	
Salonica,		6	
San Juan,			10
Singapore,		17	9
Smyrna,		20	
Valparaiso,		250	
Yokohama,		500	
Sodium Bichromate—			
Antwerp,		16 cks.	
Sodium Carbonate—			
Genoa,		39 dms.	
Sodium Silicate—			
Barcelona,		60 cks.	
B. Ayres,			10 brls.
Canterbury,			10
Higo,		20	
Leghorn,			10
Melbourne,		40	
Piræus,			5
Sulphur—			
Para,			15 c.
Antwerp,		10 t.	
Boston,		768 bgs.	
Pernambuco,		1	14 1 lb.
Superphosphate—			
Valencia,		151 t.	
Nantes,		9	18 c. 3
Tartaric Acid—			
Bilbao,		1 t.	
Turpentine—			
Malta,			7 c. 4
Rosario,		20 dms.	
Varnish—			
Alexandria,		4 cks.	2 cs.
Genoa,		6	3
Madras,			5
White Lead—			
Ceara,		70 kgs.	
Zinc Chloride—			
Bordeaux,		23 t.	

HULL.

Week ending December 9th.

Ammonium Sulphate—		
Antwerp,	181 bgs.	
Emmerick,	509	
Hamburg,	1,511	
Rotterdam,	2,185	
Valencia,	395	
Bleaching Powder—		
Dunkirk,	92 cks.	
Helsingfors,	158	
Carbolic Acid—		
Rotterdam,	25 cks.	
Caustic Soda—		
Bari,	5 dms.	
Catania,	10	
Hango,	138	
Wyburg,	9 cks.	
Chemicals (otherwise undescribed)		
Amsterdam,	1 ck.	101 pkgs.
Cologne,	70	
Christiania,	41 cs.	10 pks. 305 slbs.
Copenhagen,	13	
Dusseldorf,	22	
Danzig,	1	32 pkgs.
Flushing,	1 ck.	
Gothenburg,	41	24
Hamburg,	50	13
Hango,	50	10
Reval,	7	10
Rotterdam,	24	
Stettin,	21	102
Stockholm,	48	3 300 pks.
Cottonseed Oil—		
Antwerp,	400 cwt.	
Bremen,	50	
Cologne,	310	
Dusseldorf,	98	
Flushing,	200	
Hamburg,	156	
Rotterdam,	1,089	
Stettin,	300	
Stockholm,	99	
Trieste,	1,138	
Dyestuffs (otherwise undescribed)		
Boston,	7 cks.	
Copenhagen,	1 cs.	
Danzig,	13	2
Flushing,	4	1
Hamburg,	35	
Reval,	2	
Rotterdam,	1	
Stettin,	72 bgs.	
Linseed Oil—		
Cologne,	34 cwt.	
Christiansand,	37	
Christiania,	105	
Copenhagen,	53	
Hamburg,	257	
Rotterdam,	91	
Naphtha—		
Danzig,	12 cks.	
Painters' Colours—		
Antwerp,	11 cks.	4 cs 106 pks.
Amsterdam,	12	
Cologne,	1	
Christiania,	2	
Copenhagen,	25	
Dunkirk,	2	
Danzig,	30	
Gothenburg,	30	1
Hamburg,	30	13 50 pkgs.
Helsingfors,	1	1
Reval,	1	
Rotterdam,	2	2
Trieste,	12 cks.	
Phosphate—		
Bari,	5 cs.	
Pitch—		
Antwerp,	334 t.	
Copenhagen,	25	
Soap—		
Amsterdam,	1 cs.	
Christiania,	1	
Copenhagen,	1	
Tallow—		
Rotterdam,	29 cks.	
Tar—		
Antwerp,	1 ck.	
Amsterdam,	6	
Dunkirk,	25	
Varnish—		
Antwerp,	1 pkge.	
Hamburg,	3 cks.	

GLASGOW.

Week ending December 14th.

Ammonium Sulphate—		
Baltimore,	51 t.	£660
Valencia,	339 19½ c.	5,506
Jersey,	10	150

Asbestos—		
Hamburg,	2 pkgs.	
Bleaching Powder—		
Sydney,	5 t. 2½ c.	£50
Boracic Acid—		
Japan,	5 t. 5 c.	£190
Borax—		
Japan,	4 t. 9½ c.	£199
Dunedin,	1	31
Castor Oil—		
Sydney,	87½ glns.	£45
Caustic Soda—		
New York,	29 t. 5 c.	£236
Chemicals (otherwise undescribed)		
Hamburg,	17 cks.	£250
Chloroform—		
Brishane,	2½ c.	£28
Coal Products—		
Naphtha		
Rouen,	28 t. 9½ c.	£416
Pitch		
Madras,		£33
Amsterdam,	64 t.	89
New York,	95	6 c.
Dunkirk,	750	43
Tar		
Madras,		£66. 10s.
Constantinople,	14 t. 5 c.	£28
Philadelphia,	24	10
Copperas—		
Portland Me.,	10 t. 1 c.	£30
Copper Sulphate—		
Bordeaux,	84 t. 14 c.	£1,355
Cottonseed Oil—		
Rotterdam,	10 t.	£227
Dyestuffs—		
Fustic Extract		
Halifax, N.S.,	1 t. 3¼ c.	£41. 19s.
Indigo		
Melbourne,	2 t. 7 c.	£91
Logwood		
Lisbon,	3 t. 14½ c.	£29
Dunedin,	18	6½
Valencia,	11	3¼
Madder		
Dunedin,	12 c.	£26
Sumac Extraet		
Valencia,	5 t. 14 c.	£71
Glucose—		
Bombay,	5 t.	£120
Linseed Oil—		
Adelaide,	2 t. 7½ c.	£54
Melbourne,	1	15
Sydney,	7	4½
Cape Colony,	3	¾
Huelva,	1	26
Dunedin,	6	5¼
Chili,	1	28
Portland Me.,	8	13¼
Litharge—		
Stockholm,	5 cks.	£15
Portland Me.,	18½ c.	134
Magnesium Sulphate—		
Sydney,	3 t. 18¼ c.	£36
Portland Me.,	4	15½
Manure—		
Valencia,	90 t. 3¼ c.	£770
Jersey,	260	1,450
Paint—		
Sydney,	2 t. 16½ c.	£65
Bombay,		112
Hong Hong,	3	19¼
Japan,	2	7½
Chili,	2	6½
Peru,	5	11¼
Guayaquil,	13	10
Painters' Colours—		
Adelaide,	2 t. 11 c.	£58
Colombo,	5	4½
Cape Colony,		192
Dunedin,		291
Paraffin Wax—		
Bombay,	2 t. 4 c.	£70
Lisbon,	10	4
Dunedin,	20	600
Constantinople,	9	1
Odessa,	24	10
Rouen,	2	5½
Japan,	38	4¼
Bordeaux,	7	3
Hamburg,	10 cs.	10 bgs.
Potash Salts—		
Cape Colony,	19 t. 10 c.	£2,266
Potassium Bichromate—		
Antwerp,	4 t. 19½ c.	£193
Lisbon,	2	14½
Halifax, N.S.,	7	17
Valencia,	20	16
Bordeaux,	4	17½
Japan,	13	4¼
Dunedin,		16¼
Rouen,	11	5

Stockholm,	5 cks.	80
Portland Me.,	8 t. 13¼ c.	146
Christiania,	12	192
Potassium Chloride—		
Valencia,	10 t.	£100
Rosin Oil—		
Melbourne,	3 t. 10 c.	£22
Antwerp,	2	3½
Sheep Dip—		
Dunedin,	46 t. 3 c.	£1,050
Soda Ash—		
Antwerp,	5 t. 15 c.	£35
Philadelphia,	285	16
B. Ayres,	44	5½
Soda Salts—		
Peru,	1 t.	£25
Sodium Bichromate—		
Antwerp,	10 t. 4¼ c.	£334
Lisbon,	2	10½
Halifax N. S.,	4	15¼
Valencia,	4	15
Rouen,	19	9
Portland, Me.,	5	15
Sodium Sulphate—		
Odessa,		£6
Sulphuric Acid—		
Colombo,	7 t. 1¾ c.	£40
Superphosphates—		
Valencia,	18 t. 6 c.	£55
Tallow—		
Amsterdam,	18 t.	£430
Rotterdam,	24 t. 11 c.	990
Tarlar—		
Dunedin,	11¼ c.	£38
Tin Crystals—		
Lisbon,	18 c.	£66
Varnish—		
Brisbane,	18½ c.	£43
Huelva,	4	24
White Lead—		
Sydney,	1 t. 10 c.	£33. 10s.
Madras,	2	10
Cape Colony,	9	10
Natal,	7	18¼
Huelva,	2	1¼
Dunedin,	2	8

TYNE.

Week ending December 9th.

Alkali—		
Venice,	5 t. 11 c.	
Amsterdam,	19	12
Ghent,		13
New York,	10	
Ammonia Alkali—		
Aalborg,	20 t.	
Odense,	5	
Ammonium Carbonate—		
Aarhus,	5 c.	
Ammonium Sulphate—		
Hamburg,	150 t.	
Antimony—		
Rotterdam,	3 t. 10 c.	
New York,	45	
Arsenic—		
Rotterdam,	11 c.	
Gothenburg,	2 t. 16	
Asbestos—		
Antwerp,	1 c.	
Barium Bin oxide—		
Dunkirk,	30 t. 9 c.	
Barium Carbonate—		
Hamburg,	115 t. 19 c.	
New York,	25	14
Barium Hydrate—		
Antwerp,	101 t. 11 c.	
Bleaching Powder—		
Antwerp,	40 t. 10 c.	
Venice,	12	2
Hamburg,	1	2
Rotterdam,	23	
Amsterdam,	29	7
Copenhagen,	10	3
Drontheim,	131	3
Riga,	25	4
Gothenburg,	15	1
Borax—		
Seville,	2 t. 1 c.	
Carbolic Acid—		
Rotterdam,	5 t. 10 c.	

Caustic Soda—		
Antwerp,		11 c.
Odessa,	103 t.	5
Reval,	1	10
Venice,	37	1
Hamburg,	2	17
Rotterdam,	2	12
Amsterdam,	27	4
Copenhagen,	6	
Libau,	15	16
Minak,	15	18
New York,	173	2
Drontheim,	3	10
Stockholm,	10	3
Aarhus,	2	8
Gothenburg,	50	9
Seville,	102	7

Copperas—		
Randers,	1 t.	5 c.
Copper Sulphate—		
Reval,	11 t.	5 c.
Litharge—		
Hamburg,		12 c.
New York,	15 t.	1
Stockholm,	2	3
Magnesia—		
Odense,		4 c.
Hamburg,		5
Paint—		
Antwerp,		12 c.
Rotterdam,		5
Phosphorus—		
Seville,		8 c.
Potassium Chlorate—		
Reval,	2 t.	10 c.
Soda—		
Christiania,	10 t.	1 c.
Odense,	5	7
Rotterdam,	24	6
Amsterdam,	5	18
Ghent,	1	10
New York,	180	18
Stockholm,	23	15
Gothenburg,	5	2
Aarhus,	20	6
Arendal,	1	3
Gothenburg,	5	3
Soda Ash—		
Venice,	68 t.	16 c.
Amsterdam,	13	12
Copenhagen,	5	10
Minsk,	5	1
Sodium Hyposulphite—		
Hamburg,	12 t.	13 c.
Sodium Silicate—		
Rotterdam,	2 t.	9 c.
Sulphur—		
Christiania,	50 t.	
Amsterdam,	3	
Gothenburg,	25	
Superphosphate—		
Memel,	369 t.	18 c.
Venice,	100	1
Tallow—		
Hamburg,		14 c.
White Lead—		
Seville,	2 t.	6 c.

GOOLE.

Week ending December 6th.

Chemicals (otherwise undescribed)		
Boulogne,	3 cks.	
Ghent,	9	1 cs.
Rotterdam,	5	
Coal Products (otherwise undes.)		
Boulogne,	25 cks.	3 cs.
Ghent,	30	
Dyestuffs (otherwise undescribed)		
Ghent,	3 cks.	
Manure—		
Hamburg,	250 bgs.	
Pitch—		
Antwerp,	670 t.	
GRIMSBY.		
Week ending December 9th.		
Chemicals (otherwise undescribed)		
Dieppe,	81 pkgs.	
Hamburg,	4	22 cks. 11 cs.
Coal Products (otherwise undes.)		
Dieppe,	158 cks.	
Dyestuffs (otherwise undescribed)		
Dieppe,	6 cks.	

PRICES CURRENT.

WEDNESDAY, DECEMBER 20th, 1893.

PREPARED BY MESSRS. HIGGINBOTTOM AND CO., 116, PORTLAND STREET, MANCHESTER.

The values stated are F.O.R. at maker's works, or at usual ports of shipment in U.K. The price in different localities may vary.

Acids:—				£	s.	d.					£	s.	d.
Acetic, 25 % and 40 %	per cwt.	7/6	&	11/3	Lime, Acetate (brown)	per ton	7	0	0				
" Glacial	"	50/-			" (grey)	per oz.	11	0	0				
Arsenic S.G., 2000°	"	0	14	6	Magnesium (ribbon and wire)	per oz.	0	2	5				
Fluoric	per lb.	0	0	3 1/4	" Chloride (ex ship)	per ton	2	10	0				
Muriatic (Tower Salts), 30° Tw.	per bottle	0	0	10	" Carbonate	per cwt.	1	17	6				
" (Cylinder), 30° Tw.	"	0	3	0	" Hydrate	per ton	17	0	0				
Nitric 80° Tw.	per lb.	0	0	1 1/4	" Sulphate (Epsom Salts)	per ton	2	19	0				
Nitrous	"	0	0	1 1/4	Manganese, Sulphate	"	17	15	0				
Oxalic	nett	0	0	3 1/4	" Borate	per cwt.	2	12	6				
Phosphoric, 1750°	"	0	1	2 1/2	" Ore, 70 %	per ton	4	5	0				
Picric	"	0	1	0	Methylated Spirit, 61° O.P.	per gallon	0	2	0				
Sulphuric (fuming 50 %)	per ton	15	10	0	Naphtha (Wood), Solvent	"	0	3	0				
" (monohydrate)	"	5	10	0	" Miscible, 60° O.P.	"	0	5	0				
" (Pyrites, 168°)	"	3	0	0	Oils:—								
" 150°	"	1	5	0	Cotton-seed	per ton	22	0	0				
" (free from arsenic, 145°)	"	1	6	0	Linseed	"	21	10	0				
Sulphurous (solution) S.G. 1025	"	3	0	0	Petroleum, Russian	per gallon	0	0	1 1/4				
Tannic (pure)	per lb.	0	1	2	" American	"	0	0	5 1/4				
Tartaric	"	0	0	11 1/2	Phosphorus (yellow)	per lb.	0	2	2				
Arsenic, white powdered	nett	13	7	6	" (red)	"	0	2	9				
Alum (loose lump)	"	5	2	6	Potassium (metal)	per oz.	0	3	7				
Alumina Sulphate (pure)	"	5	0	0	" Bichromate	per lb.	0	0	4 1/4				
Aluminoferic	"	2	10	0	" Carbonate, 90% (ex ship)	per ton	16	10	0				
Aluminium	per lb.	0	3	0	" Chlorate	per lb.	0	0	8				
Ammonia, Anhydrous	"	0	1	2	" Cyanide, 98%	"	0	2	0				
" 880=28°	per lb.	0	0	3	" Hydrate (Caustic Potash) 80/85 %	per ton	21	15	0				
" =24°	"	0	0	2 1/4	" (Caustic Potash) 75/80 %	"	20	10	0				
" Carbonate	nett	0	0	3 1/2	" (Caustic Potash) 70/75 %	"	20	0	0				
" Muriate	per ton	25	10	0	" Nitrate (refined)	per cwt.	1	2	6				
" (sal-ammoniac) 1st & 2nd	per cwt.	37/-	&	35/-	" Permanganate	per cwt.	3	5	0				
" Nitrate	per ton	44	0	0	" Prussic Yellow	per lb.	0	0	10 1/4				
" Phosphate	per lb.	0	0	10 1/2	" Sulphate, 90 % (ex ship)	per ton	9	15	0				
" Sulphate (grey) London	per ton	13	10	0	" Muriate, 80 % (do.)	"	8	0	0				
" (grey) Hull	"	13	10	0	Silver (metal)	per oz.	0	2	8 1/2				
Aniline Oil (pure)	per lb.	0	0	6 1/4	" Nitrate	"	0	2	10				
Aniline Salt	"	0	0	5 1/4	Sodium (metal)	per lb.	0	3	4				
Antimony	per ton	45	10	0	" Carb. (refined Soda-ash) 48 %	nett	per ton	5	10	0			
" (tartar emetic)	per lb.	0	1	0	" " (Caustic Soda-ash) 48 %	"	"	4	10	0			
" (golden sulphide)	"	0	0	10	" " (Carb. Soda-ash) 48%	"	"	4	10	0			
Barium Chloride	per ton	7	10	0	" " (Carb. Soda-ash) 58 %	"	"	4	2	6			
" Carbonate (native)	"	3	10	0	" " (Soda Crystals)	"	"	3	0	0			
" Sulphate (native levigated)	"	45/-	to	75/-	" Acetate (ex-ship)	"	"	16	0	0			
Bleaching Powder, 35 %	nett	8	0	0	" Arseniate, 45 %	"	"	11	0	0			
" Liquor, 7 %	"	3	10	0	" Chlorate	per lb.	0	0	8 1/4				
Bisulphide of Carbon	"	11	15	0	" Borate (Borax)	net, per ton.	28	10	0				
Chromium Acetate (crystal)	per lb.	0	0	6	" Bichromate	per lb.	0	0	3 1/4				
Calcium Chloride	per ton	2	5	0	" Hydrate (77 % Caustic Soda) (f.o.b.) net pr. ton	11	10	0					
China Clay (at Runcorn) in bulk	"	17/6	to	35/-	" " (74 % Caustic Soda)	"	"	10	5	0			
Coal Tar Products and Dyes:—													
Alizarine (artificial) 20 %	net	per lb.	0	0	8	" " (70 % Caustic Soda)	"	"	9	7	6		
Magenta	"	"	0	3	9	" " (60 % Caustic Soda)	"	"	8	7	6		
Anthracene, 30 % A, f.o.b. London	per unit	per cwt.	0	1	1	" " (60 % Caustic Soda, cream) (f.o.b.)	10 ton lots	"	8	2	6		
Benzol, 90 % nominal	per gallon	0	1	6	" Bicarbonate	"	"	7	0	0			
" 50/90	"	"	0	1	7	" Hypsulphite	"	"	6	10	0		
Carbolic Acid (crystallised 40°)	per lb.	0	0	6 1/4	" Manganate, 30%	"	"	16	0	0			
" (crude 60°)	per gallon	0	1	7	" Nitrate (95 %) ex-ship Liverpool	per cwt.	0	9	0				
Creosote (ordinary)	"	"	0	0	2 1/2	" Nitrite, 98 %	per ton	29	10	0			
" (filtered for Lucigen light)	"	"	0	0	3	" Phosphate	"	"	15	0	0		
Crude Naphtha 30 % @ 120° C.	"	"	0	0	9	" Silicate (glass)	per ton	5	7	6			
Grease Oils, 22° Tw.	per ton	2	5	0	" " (liquid, 100° Tw.)	"	"	4	5	0			
Pitch, f.o.b. Liverpool or Garston	"	"	1	9	0	" Stannate, 40 %	per cwt.	3	0	0			
Solvent Naphtha, 90 % at 160°	per gallon	0	1	4	" Sulphate (Salt-cake)	per ton.	1	2	6				
" Lucigen" and "Wells Oils	"	"	0	0	2 1/2	" " (Glauber's Salts)	"	"	1	10	0		
Copper	per ton	43	1	3	" Sulphide	"	"	8	10	0			
" Sulphate	"	"	16	10	0	" Sulphite	"	"	5	15	0		
" Oxide (copper scales)	"	"	40	0	0	Strontium Hydrate, 100%	"	"	8	10	0		
Glycerine (crude)	"	"	13	0	0	Sulphocyanide Ammonium, 95 %	per lb.	0	0	7 1/4			
" (distilled S.G. 1250°)	"	"	13	0	0	" Barium, 95 %	"	"	0	0	5 1/4		
Iodine	nett, per oz.	0	0	9	" Potassium	"	"	0	0	7			
Iron Sulphate (copperas)	per ton	1	12	6	Sulphur (Flowers)	per ton.	8	0	0				
" Sulphide (antimony slag)	"	"	2	0	0	" (Roll Brimstone)	"	"	6	10	0		
Lead (sheet) for cash	"	"	10	15	0	" Brimstone: Best Quality	"	"	4	2	6		
" Litharge Flake (ex ship)	"	"	13	0	0	Superphosphate of Lime (26%)	"	"	2	7	6		
" Acetate (white ")	"	"	26	0	0	Tallow	"	"	28	0	0		
" brown ")	"	"	17	10	0	Tin (English Ingots)	"	"	80	0	0		
" Carbonat: (white lead) pure	"	"	20	0	0	Tin Crystals	per lb.	0	0	6 1/4			
" Nitrate	"	"	20	0	0	Zinc (Spelter)	per ton	16	12	6			
						" Chloride (solution, 96° Tw.)	"	"	5	15	0		

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OIL, PAINT and COLOUR REVIEW.

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Readers are invited to forward items of intelligence, or cuttings from local newspapers, of interest to the trades concerned.

Articles, reports, and correspondence on all matters of interest to the Chemical and allied industries, home and foreign, are solicited. Correspondents should condense their matter as much as possible, write on one side only of the paper, and in all cases give their names and addresses, not necessarily for publication. Sketches should be sent on separate sheets.

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CURRENT TOPICS.

COMPULSORY SMOKE PREVENTION.

THE State of Massachusetts always seems well to the front in sanitary matters. Be it sewage treatment, water supply, or what not, an effective investigation is instituted, and a report, usually of considerable value not only to Massachusetts in particular, but to any large town interested in such matters, is prepared.

The prevention of the unnecessary pollution of the atmosphere by smoke, claimed the attention of the legislators of the State a few months ago, upon whose decision an examination has been made of all places burning bituminous coal. The inquiry went into such details as the number, size, and horse-power of the boilers, area of heating surface, chimney and flues, daily consumption of fuel and the hours during which the boilers are used in winter and summer. The new law applies to cities of over three hundred thousand inhabitants, and forbids “the use of bituminous coal for steam making in boilers in any building, unless the furnace in which the coal is burned is so constructed or equipped, that at least 75 per cent. of the smoke is consumed, or otherwise prevented from entering the atmosphere, the degree of suppression being determined by the quantity of such smoke emitted as shown by the density and colour of the issuing smoke, and the length of time which it is visible. The maximum standard of comparison is to be a continuous discharge of dense, dark smoke, during the time the furnace is in active operation.”

However manufacturers may feel put upon in the matter of smoke prevention in this country, things have not reached such a climax as yet. It is hard to say how they would enjoy a similar inspection to that to which their fellow-manufacturers in the United States have been subjected, especially as the details and information which have been collected during that investigation will very soon enable the inspectors to bring the penalties of the new law to bear on those who are not disposed to take steps to fulfil the requirements of the same. We should prefer to wait and learn what improvement in the salubrity of the atmosphere is effected by this new law before considering whether such a law would be suited to the exigencies of the smoke question in this country. One thing, at least, the past year with its coal strike has shown, and that is, that when coal was scarce and had to be consumed with care, and in smaller quantities, the fogs which usually envelope our large towns, especially Manchester, about the end of September, were markedly absent till a much later period of the year, even when making allowance for the exceptional mildness of the winter up to now.

EDUCATION GRATIS.

Since the gift of free education seems to be but poorly appreciated by the lower classes (as is generally the case with things that cost them too little), we are soon obliged to

introduce a new law to make them appreciate the boon of having their children well educated for nothing. As a matter of fact, this is what Sir R. Temple's bill amounts to. When a comparatively trifling sum had to be paid for education, the payment of the fees was made an excuse for irregular attendances. Free education was to remove all this, and yet only the other day a deputation attended the Education Department to endeavour to bring into force some regulations which should do away with the difficulties arising out of the irregularity in the attendances which now exists. The argument that things which cost nothing are valued accordingly by the working-classes, is borne out by the fact that those who have to make the small sacrifice of going a comparatively long distance to school, are much more regular in their attendances than those who have schools almost at their doors. The regularity of those coming from a distance is marvellous in comparison with the irregularity of those within a stone's throw. Mr. Acland himself has had, perforce, to admit that in this matter, free education has done no good at all. The extension of the limit of exemption from school attendance, from ten years to eleven, according to the Act which comes into force on January 1st, 1894, will, we suppose, afford a year in which the time which has been lost may (or may not) be pulled up. It is only part of the eternal patchwork which every year sees perpetuated. If we wait long enough we may yet see a bill to ensure the performance of something, which the latest addition will be found to have failed to accomplish.

MORE ABOUT LABORATORY STILLS.

That never-flagging discoverer of mare's nests, the Excise officer, has been making more discoveries in Scotland. A dyer's laboratory was the subject of investigation this time, and the firm were fined for having a still in their laboratory without having given due notice of the existence of the same to the Excise authorities. It was openly stated that the still, which was a small one, was used to concentrate methylated spirits; the alcohol so obtained being used for testing oils and fats.

This, however, does not appear to be the real cause of trouble to the Excise people. The prosecution was not based on the fact of having purified the methylated spirit, but on the existence of a still without the permission of the authorities. And this is the crux, because if a small copper boiler and a block-tin worm looks suspicious to the Excise Inspector, a two-litre retort and a Liebig cooler would do, and look very guileless as well. Is this latter arrangement to be considered a still within the meaning of the Excise law? If so, the still-taxes on a laboratory would amount to a pretty penny.

We might certainly entertain doubts as to the strict legality of rectifying methylated spirits, but it appears to be a process innocent of aught that may stir up the ire of an Excise official. The offence which is so heinous is being the owner of an unauthorised still. Now in England analysts and chemical laboratories have obtained, comparatively recently, what amounts to a permit from the Inland Revenue Board to own unlicensed stills. Seeing that in the case in point the Excise won the day, the result is not very reassuring. Things seem to be rather mixed at present, and the case which has just turned up in Scotland would make an excellent test case. Unfortunately, there is little chance of its being thrashed out.

ECONOMISING IN THE ALKALI TRADE.—A large number of men, estimated at 300 or 400, employed by Messrs. Brunner, Mond, and Co., Northwich, at their alkali works, have received sixteen days' notice, and go out without any intimation as to when they are to resume work. It is stated that this is an economy due to the new works at Silvertown, on the Thames, having cost considerably more than was expected. The economy is in the construction department.

THE TREATMENT OF AMMONIA LIQUOR.

BY HERR BLUM.

THE preparation of ammonium sulphate in the Eastern provinces of Germany is accompanied by many difficulties. On the one hand, the market for the disposal of the salt lies in central Germany, and, on the other, the sulphuric acid is difficult to obtain, its price being for example nearly twice as high as in Oberschlesien. In small works the circumstance must also be remembered that continuous work is impossible and that therefore the quality of the product produced is not always so high as is the case when the manufacture is carried on regularly. Such works have then to make concessions in price on account of low percentages of nitrogen or too high amounts of free acid. In addition to this, the manufacture of sulphate of ammonia is being more and more taken up by the coking establishments, which are able from the enormous amount of ammonia produced and the natural conditions of work to prepare the sulphate at a lower price.

These works are on such a scale that the acid can be ordered by the truck load, and is then run into closed holders at a low level, from which it is forced by air pressure into high level holders, whence it passes directly into the saturating vessels. The acid itself, in Oberschlesien for example, can be obtained very cheaply from the neighbouring works, and the steam required is obtained without cost by means of the waste gases from the coke ovens. The distribution of the product is effected by connection with the neighbouring railroads, wages are low, and in short everything is favourable to the manufacturer. Small works can only compete with these large establishments under great disadvantages, and are therefore recommended to either make the finer products, such as ammonia solution, liquid ammonia, &c., in which case, however, the difficulty of transport is not avoided, or to sell the liquor to works which make this class of product. The coking establishments are not fitted, owing to the character of their work, for the manufacture of these secondary products, and the chemical works, which work up the ammonia, must therefore be the centres for the treatment of the liquor. For this purpose, however, the liquor from the smaller works must be supplied in a concentrated form. The ammonia water as produced at the gas works contains usually from 1.2% of ammonia, and the transport of such material is rendered a serious item by the 98.99% of water which is also carried. The object to be aimed at then is the concentration of the water on the spot to a strength of about 15%. If this be done, the cost of transport is sufficiently low to allow of a profit even when the article is sent to very great distances.

The transport can be effected in special wagons sent by the purchasing works if a railway is in the neighbourhood, or in separate iron vessels. I have commissioned the firm of Messrs. Kunheim and Co., Berlin, Niederschönweide, to place such tanks for transport at the disposal of the gas works in the district, as has long been done by the Mannheim chemical works.

This works (in Berlin) is, moreover, ready to enter upon long term contracts with the single gas works for the purchase of concentrated liquors. The contracts would be drawn up in such a way that the purchasing works would supply the transport tanks carriage free, and pay for the ammonia in the concentrated liquor a price corresponding to the state of the market and fixed beforehand.

By means of an arrangement of this kind, the gas works, however small, ensure a regular sale of their ammonia water and, as has been proved by experience, a reasonable profit. In works that produce 400,000 cubic metres annually, there should be a decided profit after taking into account the cost of concentration. I am prepared, in conjunction with Messrs. Kunheim and Co., who take the liquor of the Bremen works, to offer proof of this in individual cases.

We have in this works arrangements of this kind with the gas works of Cassel, Wien-Florisdorf, Bieltitz, Biala, and Bautzen. The cost of the process of concentration can almost be neglected in the smaller works, since the apparatus is of necessity managed by the men already employed upon the works, and since the steam required does not cost much, and the retort can be heated by coke.

The manager at Elbing has ascertained that about 75 kilo. of coke are required to work up 1,000 litres of ammonia water, the price of which at the time was 20pf. per 50 kilo. When the coke ash is used in properly constructed burners, the cost is reduced still further, and can often be entirely neglected, since the ash is almost without value. The only thing then to be considered is the small amount of lime used. The concentration of the liquor is carried out in the usual ammonia distilling apparatus (patented by Grüneberg and Blum), in which the volatile ammonia is driven over by heat, the combined being liberated by the addition of lime. The united mixed vapours of water and ammonia, which, in the manufacture of ammonium sulphate, would be introduced into the saturating chamber, are simply cooled by water and thus condensed. This method has the great advantage that no nuisance is created, since no obnoxious vapours are evolved.

As regards this question of the unpleasant vapours which are evolved in the making of ammonium sulphate, Kunath states that he has entirely

overcome the difficulty by employing the simple process of condensation. The vapours passing out of the saturating chamber after going through a tube-condenser in order to heat the ammonia water flowing into the column apparatus, is led into an iron cylinder and there condensed by water which falls through it in a fine shower. The residual gas then passes away under the heating arrangement of the boiler, whilst the water flows away at the bottom. The cylinder is four metres high and 0.06 metres wide. The use of this simple apparatus removes every trace of unpleasant fume. The gases are introduced at the top of the cylinder so that the motion of the water which is in the same direction may assist the exit of the gases. A short bent piece of tube is introduced into the cylinder at the entrance in order to impart the proper motion to the gas. The same apparatus has been introduced at the works at Thorn, and has there proved equally successful. At Berlin it is the custom to first of all cool the gases and then to pass them through a purifier containing oxide of iron in order to remove the sulphuretted hydrogen. The gases are then led off to the chimney, and are burned so that all annoyance is avoided.

MAKING STANDARD SPERM CANDLES.

THE Metropolitan gas referees have lately issued the following particulars concerning the methods to be adopted in manufacturing standard sperm candles for photometric work:—

(1.) All candles to be used in the testing-places shall be made with the materials hereinafter prescribed, and shall, when made, be examined and certified by the gas referees.

(2.) The wicks shall be made of three strands of cotton plaited together, each strand consisting of 18 threads. The strands shall be plaited with such closeness that, when the wick is laid upon a rule, and extended by a pull just sufficient to straighten it, the number of plaits in four inches shall not exceed 34, nor fall short of 32. Each wick shall be of suitable length, and looped ready for fixing in the mould. After having been bleached in the usual manner and thoroughly washed (see Appendix), the wicks shall be steeped in a liquid made by dissolving one ounce of crystallized boracic acid in a gallon of distilled water, and adding two ounces of liquid ammonia. They are then to be gently wrung or pressed till most of the liquid has been removed, and dried at a moderate heat. Twelve inches of a wick thus made and treated shall weigh not more than 6.5, nor less than 6 grains. The weight of the ash remaining after the burning of 10 wicks which have not been steeped in boracic acid, or from which the boracic acid has been washed out, shall be not more than 0.025 grain. Wicks made in accordance with this prescription shall be sent to the office of the gas referees, by whom they will be examined and certified. The wicks so certified are to be used by the candle-maker in the condition in which they are returned to him.

(3.) The spermaceti of which the candles are made shall be genuine spermaceti, extracted in the United Kingdom from crude sperm oil, the product of the sperm whale (*Physeter Macrocephalus*). It shall be so refined as to have a melting point lying between 112° and 115° Fahr. An account of the method by which the melting point of the spermaceti is to be determined is given in the appendix. Since candles made with spermaceti alone are brittle, and the cup which they form in burning has an uneven edge, it is necessary to add a small proportion of beeswax or paraffin to remedy these defects. We therefore prescribe that the best air-bleached beeswax, melting at or about 144° Fahr., and no other material, shall be used for this purpose, and that the proportion of beeswax to spermaceti shall be not less than 3 per cent, nor more than 4½ per cent.

(4.) The candles made with the materials above prescribed shall each weigh, as nearly as may be, one-sixth of a pound, and will be found to answer to the following test:—Immerse a candle, taper-end downwards, in water of 60° Fahr. with a brass weight of 40 grains attached to the wick by a small piece of thread. When a further weight of two grains is laid on the butt end of the candle, it will still float; but with a weight of four grains it will sink. As the rate of burning of a candle is affected by the force with which the wick is pulled when it is set in the mould, the strain commonly applied by an experienced maker of candles has been measured, and is found to be about 24 oz. The candles shall be sent to the office of the gas referees by whom samples from each batch will be examined and tested. Each batch of candles shall be accompanied by a specimen of the spermaceti (unmixed with beeswax) which was used in making them. Packets of candles approved by the gas referees will be sealed by them, and certified for use in the testing-places.

(5.) The candles are to be used by the gas examiners as heretofore, in accordance with the half-yearly "notifications" of the gas referees. The results are to be corrected as usual, on the assumption that for small variations the light of a candle varies directly with its consumption; and if any candle in a packet certified by the gas referees is found by a gas examiner to burn at a rate exceeding 126, or falling

short of 114 grains per hour, the testings made with that candle are to be rejected.

APPENDIX.

Method of Determining the Melting-Point of the Spermaceti.

As various methods are used by different refiners of spermaceti for determining the melting-point, which lead to different results, it must be noted that the temperatures here given as the limits within which the melting-point of a sample of refined spermaceti should fall—viz., 112° to 115° Fahr.—have been found by the following method, which is known as the capillary tube method:—

A small portion of the spermaceti is melted by being placed in a short test-tube, the lower end of which is then plunged in hot water. A glass tube drawn out at one end into a capillary tube about 1 mm. in diameter is dipped, narrow end downwards, into the liquid spermaceti, so that, when the tube is withdrawn, 2 or 3 mm. of its length are filled with spermaceti, which immediately solidifies. The corresponding part of the exterior of the tube is also coated with spermaceti, which must be removed. The narrow part of the tube is then immersed in a large vessel of water of a temperature not exceeding 100° Fahr. The lower end of the tube which contains the spermaceti should be 3 or 4 inches below the surface, and close to the bulb of a thermometer. The upper end of the tube must be above the surface; and the interior of the tube must contain no water. The water is then slowly heated; being at the same time briskly stirred, so that the temperature of the whole mass is as uniform as possible. When the plug of spermaceti in the tube melts, it will be forced up the tube by the pressure of the water. The temperature at the moment when this movement is observed is the melting-point.

Method of Washing Wicks.

As it is found to conduce to the regular burning of candles that the wicks should have been as far as possible cleaned and freed from mineral matters, it is recommended that the candle maker, before steeping the wicks, shall wash them first in distilled water made alkaline with between one and two per cent. of strong liquid ammonia, then in dilute nitric acid containing about 10 per cent. of strong acid, and then repeatedly in distilled water.

ANALYSIS OF SMOKELESS POWDER.

By C. ISTRATI.

THERE is nothing more difficult than to have to analyse a complex substance of the composition of which one has not the slightest idea. Especially is this so when the compound is explosive, as is the case with a smokeless powder. In any case it is necessary to make a preliminary analysis, and to first endeavour to split up the body into less complex bodies of which to make a qualitative analysis. Even then there remains the difficulty of estimating the relative quantities in which these bodies occur. Such a case, however, fell to my lot, having to analyse a smokeless powder concerning the composition of which I had not the slightest idea, and was therefore somewhat exercised as to how to proceed, and did not think I should succeed in finding out as easily as I did the composition of the powder I had to investigate. This powder was in the form of small sticks perfectly cylindrical, their diameter being less than a millimetre, and their length about seven millimetres. The colour was yellow, with a waxy appearance, and sufficiently soft to be easily squashed under one's finger nail. It burnt without explosion, and at the rate of about a metre in four minutes, the little cylinders being placed end on end. The powder was not soluble at all in water, and when burnt it left very little ash.

Dried at 105°C., it gave upon analysis the following results:—

Carbon	21.86%
Hydrogen ..	3.33%
Nitrogen	15.84%

Some of the powder was then placed in an extraction apparatus, and extracted with benzene. After several trials it was found that by this treatment the powder was only separated into two parts, which by their intimate mixture formed the greater part of the powder; with the exception that a small quantity of resin was found, about 0.5%, with which the cylinders were probably covered to prevent their absorbing moisture from the air.

Of the two portions obtained by the benzene treatment, one was a colourless liquid, which exploded when struck with a hammer, and was found to be nitro-glycerine. The other part was a light grey solid, which on analysis was found to be trinitro cellulose, and to which the powder owed its inflammable properties. The results of the estimation of the percentage of these two ingredients was as follows:—

Nitro-glycerine	48.00%
Trinitro-cellulose	51.50%
Resin	0.50%

100.00

The resin only being added to form a protecting covering, and to give adhesiveness to the particles.—*Bul. Soc. Sci. Bucuresti.*

Paper-Makers' Column.

TESTING COLOURS USED FOR PAPER-MAKING.

(Specially Contributed.)

THE number of colours used for colouring paper, either in the beater engine or by smearing the surface of the dried sheet, is great, and, in consequence, their investigation is rather complex. It is possible, however, to formulate methods for qualitatively ascertaining the nature of the colour used when this is a pure or simple colour, but when the colour is a compound one, *i.e.* formed by a combination of two or more simple colours, the investigation becomes much more difficult. Coal-tar dyes and mineral colours are frequently mixed, and not infrequently we find a colour adulterated by the addition of others to it. Mineral colours and coal tar dyes are moreover often used for "shading," and in such cases the quantitative investigation of the colour on the paper can only be undertaken by the chemist. The qualitative investigation of these colours may be carried out with ease.

Colours used in the manufacture of paper and by the paper-stainer may be conveniently divided into two groups, *viz.*:—1st, those of inorganic origin; and, 2nd, those of organic origin. To ascertain to which of these groups any pure colour belongs, it is only necessary to heat a little on a platinum capsule over the flame of a spirit lamp. Organic colours will first blacken, and then burn more or less completely, according to their degree of purity. Unadulterated organic colours which contain no inorganic body as an essential constituent leave no residue. On the other hand, inorganic colours, when subjected to this treatment, will in many cases change their shade, but the greater part of them will remain in the capsule.

Paper-makers' colours may be divided into two groups, namely:—

- I. Inorganic or mineral colours, with which are included all white loading materials, because these act as white colours when used with pulp.
- II. Organic colours, or those which are considered by chemists to be of organic origin, and which are obtained from animal or vegetable sources.

I.—Inorganic or Mineral Colours.

WHITE LOADINGS.

Annalin or Sulphate of Lime is finely ground gypsum (CaSO_4). It may also be obtained in the chemical way by precipitation. It is sparingly soluble in water (1 part CaSO_4 in 400 parts water), and its solutions give a white precipitate of oxalate of lime, on the addition of oxalate of ammonia.

China Clay, Kaolin, when boiled with sulphuric acid, diluted with water and filtered, yields a solution from which a voluminous white precipitate is obtained on the addition of ammonia.

Permanent white, blanc fixe, is chemically precipitated finely-divided sulphate of barium (BaSO_4). It is completely insoluble in water and acids. A little of the powder or paste is fused with carbonate of soda in a small platinum capsule, the fused mass lixiviated in water, filtered, and the insoluble matter on the filter washed. This residue is then treated with dilute hydrochloric acid filtered, and a few drops of sulphuric acid added to the filtrate, when a white precipitate of sulphate of barium (BaSO_4) is obtained.

White lead, basic carbonate of lead, is soluble in dilute nitric or acetic acids. The solution thus obtained gives a black precipitate with sulphuretted hydrogen water.

RED COLOURS.

Chrome-red, basic chromate of lead, $\text{PbO} \cdot \text{PbCrO}_4$ is soluble in concentrated solutions of caustic soda; it is decolourised by hydrochloric acid, and the colour is reproduced on the addition of potassium iodide.

Minium, red lead, is a combination of oxide of lead (PbO) with the peroxide (PbO_2) $2 \text{PbO} + \text{PbO}_2 = \text{Pb}_3\text{O}_4$. When treated with nitric acid, the PbO is dissolved whilst the PbO_2 remains as a brown residue. If sugar be added to the acid, the peroxide of lead is dissolved. Lead may be detected in the solution by adding sulphuric acid when a white precipitate of sulphate of lead is obtained, or by adding sulphuretted hydrogen water, which produces a black precipitate of sulphide of lead.

Red ochre is either prepared or found native. The prepared ochre is usually produced in the beater engine by adding sulphate of iron or green vitriol and soda crystals to the pulp in the proportion of 278 to 106 respectively. The quantity of this ochre in any papers may be estimated by burning a weighed quantity of the paper and weighing the ash.

Natural ochre, which possesses greater importance as a colour, is a mixture of hydrated peroxide of iron $\text{Fe}_2(\text{OH})_6$ with clay, as is usual with all earthy colours. To test for iron, a little of the ochre is dissolved in hydrochloric acid, diluted with water, and a small crystal of

yellow prussiate of potash added. When a blue precipitate (Berlin-blue) is formed, solution of potassium sulphocyanide (KCNS) yields a deep blood-red colouration.

GREEN COLOURS.

To this group the copper colours belong before all others. These are Schweinfurter green (double acetate arsenite of copper), Braunschweiger green, mountain green, mountain blue, &c., which consist of basic carbonate of copper of different composition. To ascertain the presence of copper, treat the colour with nitric acid, dilute and add ammonia in excess, when a beautiful deep blue fluid is obtained.

Both these and the above so-called lead colours are more or less poisonous, and are, in consequence, little used in the paper manufacture to-day. It is necessary, however, to notice them.

For the production of green, a judicious mixture of yellow and blue colours is employed—such, for example, as chrome-yellow and ultramarine. A mixture of these two colours is decolourised by addition of hydrochloric acid, whilst the colours themselves are destroyed. The chrome yellow is again reproduced by potassium iodide, while the ultramarine is totally destroyed with evolution of sulphuretted hydrogen.

BLUE COLOURS.

Ultramarine is an inorganic blue colour, composed of a series of elements, whose peculiar chemical combination, in spite of much pains, has not yet been completely explained. The colour is very pure and fast. It does not change when exposed to the air, light, or moisture. It resists the action of fire, and is not attacked by dilute alkalis. Sulphuric or hydrochloric acids decolourise it with evolution of sulphuretted hydrogen.

Smalts, Azure or King's-blue, is a finely-ground and levigated glass which has been coloured blue by cobalt compounds. It is not changed by acids nor alkalis, and when fused before the blowpipe with borax yields a beautiful blue bead.

GREY COLOURS.

For producing grey-coloured papers finely-ground peroxide of manganese (Braunstein) is used. This dark-coloured powder consists substantially of MnO_2 , and is soluble in strong hydrochloric acid with evolution of chlorine. The solution of chloride of manganese MnCl_2 thus obtained after neutralisation yields a flesh-coloured precipitate of sulphide of manganese on the addition of sulphide of ammonia.

Finely-divided metallic Tin, the so-called *Argentine*, is used for the preparation of silver paper. The tin powder is mixed with a solution of wax in caustic potash and then smeared over the surface of the paper. After glazing under high pressure, the beautiful shining so-called silver paper is obtained. The tin dust is easily soluble in hydrochloric acid, and when sticks of metallic zinc are immersed in this solution a greyish spongy precipitate of metallic tin is precipitated with evolution of hydrogen gas.

(To be Continued.)

TESTING EUCALYPTUS OIL.

IN a recent paper on this subject Mr. D. B. Dott said Eucalyptus oil was of such value, and its quality in the market varied so widely, that it was of much importance that proper tests for the purity of the substance should be adopted. As regarded density, he said that, speaking generally, oils of low specific gravity were the most deficient in eucalyptol, and were perhaps more likely to contain phellandrene and other objectionable constituents. He would suggest the placing of the specific gravity at '900 to '930. Apparently there was not much to be learned by the use of the polariscope in the examination of eucalyptus oil, and as matters stood they had to be content with an approximate method for the estimation of eucalyptol. An approximate estimate might be made by petrification, but such a process would not be suitable as a pharmacopoeial test. Fractional distillation, notwithstanding some imperfections, was the best test practically available. Possibly the best fraction to take as representing eucalyptol was that distilling between 170°C . and 180°C . This had been shown to yield abundance of crystalline eucalyptol when cooled to a low temperature. He did not think that the suggestion to introduce the freezing out test was at all practicable. As to the proportion distilling at from 170 to 180 degrees which a good oil should yield, he did not think that they were entitled to fix the minimum at above 50 per cent. As regarded the salicylic acid test, miscibility with alcohol was simpler and equally valuable. Thirty-nine experiments made by him in determining the bromine absorption of different oils were not sufficient to enable him to recommend it as a general test; broadly speaking, the best oils had least absorptive power for bromine. Iodine absorption was not a convenient process. As to the nitrous acid and bisulphite tests for phellandrene and aldehydes, which were of great importance, he had not found any of the examples that he had recently examined to give distinct reactions with either reagent.

Legal Intelligence.

HIGH COURT OF JUSTICE.

QUEEN'S BENCH DIVISION.

(Before the Lord Chief Justice and Mr. Justice Collins.)

CHAMPION AND CO. (LIMITED) v. THE BIRMINGHAM VINEGAR BREWERY COMPANY (LIMITED).

This case raised a question as to the right of one trader to publish against another a report of a proceeding for adulteration, and incidentally, the power of the Court to restrain the publication by an order. The defendants are vinegar makers at Birmingham, and in business, as the plaintiffs alleged, in competition with them. Just 25th last there appeared in the *Grocers' Journal* a paragraph, "Messrs. Champion's Vinegar in Court," stating that a charge had been made against a grocer under the Adulteration Act for selling adulterated, and that the dealer had purchased it from another and received it from Messrs. Champion, and that a letter from the grocer read denying the truth of the charge as to their vinegar, but that a fine was imposed on the retail dealer, the Bench, however, holding that it was most unfair that the disgrace should be visited on the grocer. On August 26th another similar paragraph appeared in the *Grocers' Journal*, and that the defendants immediately after the publication of the paragraph, with the view of inducing the plaintiffs' customers and others to believe that their vinegar was adulterated, caused the paragraph to be reprinted on slips of paper and circulated them extensively, and caused their travellers, servants, and agents with copies of the paragraph to leave them with the plaintiffs' customers and to state that the plaintiffs' vinegar was adulterated, and that persons retailing the plaintiffs' vinegar exposed themselves to prosecution; and that the defendants' travellers did so. The plaintiffs further complained that the paragraph had been printed and published of the plaintiffs a letter in the *Grocers' Journal*, headed "The Vinegar Question," stating that the paragraph which had been urged by Messrs. Champion was "absorbed and ridiculous," and that any competent manufacturer now his own production, &c., and that "Messrs. Champion, their unable or unwilling to protect their customers in a proper manner, attempted to 'bounce' the Court and the public by making inflammatory statements as to their output, and which it was impossible for them to substantiate;" meaning, as the plaintiffs alleged, that the paragraph was adulterated and that they made idle and ridiculous statements for it. And, further, that the defendants maliciously caused the paragraph to be reprinted and circulated among the plaintiffs' customers and others, and that by reason of these republications the plaintiffs had been prejudiced in their business and the reputation of their vinegar for purity had been affected, and they prayed, as well as for an injunction restraining the defendants from circulating the paragraph; and particulars had been given of the names of persons to whom the republications had been given. There had as yet been a plea delivered, but while it was asserted in the plea that the analyst had been wrong, it was not suggested that the paragraph as reports were untrue or that it was intended to conceal the truth, and the contrary was sworn. An order had been made at Judges' Chambers to restrain further circulation of the paragraph, and against which the defendants now appealed. Mr. Justice Collins, in giving judgment, said the law had been settled in the case of *Coleridge v. White*, in a case of the highest authority in the House of Lords. And the law had been settled to be that an injunction ought not to be granted in such case unless the Court was absolutely satisfied that a wrong was being done, and it was not so if a jury might on any ground reasonably suggest that a wrong was not done. By that decision the plaintiffs were bound, and the more so since the jurisdiction to grant an injunction in such cases had only been exercised recently. It was a jurisdiction of a delicate nature, and not to be exercised but in the most exceptional cases. Now, the occasions on which these alleged libels had been published were all occasions on which, unless abused, privilege might be claimed. In the case of "Stevens v. Sampson," which was quite different, there was evidence of malice and that the occasion had been abused. It was very well-established law that the occasion must not be abused, and the jury found there that it had been abused. The law, therefore, in the present case was quite consistent with the law in *Coleridge v. White*. Mr. Justice Collins was of the same opinion. The injunction was allowed, and the injunction dissolved.

(Before Justices Hawkins and Lawrence.)

JAMES, Appellant—JONES, Respondent.

This case raised a curious question as to the sale of a baking powder containing alum—whether it comes within the Adulteration of Food Act. The prosecution was instituted under the direction of the Glamorganshire County Council by one of the inspectors on a charge of the "Excelsior" baking powder at Pontypridd, near

Cardiff. The information was under section 3 of the Adulteration Act of 1875—"No person shall mix or powder any article of food with any ingredient so as to render it injurious to health." The charge was that the appellant was selling a baking powder mixed with alum. The case was this. On December 10th, 1892, the appellant sold to respondent a packet of baking powder weighing about 1 oz. for the price of 1d. It was composed of certain ingredients—(1) bicarbonate of soda, 20 per cent.; (2) alum, 40 per cent.; ground rice, 40 per cent. The baking powder was called "Excelsior," composed of these ingredients, has been sold for many years, and is used exclusively in the process of making bread, cakes, and pastry. It is not necessary to use alum in baking powder. Other acids which are not injurious to health are largely used in commerce for the purpose. The acid used in the best known baking powder is tartaric acid, which is not injurious to health, but this acid is sold at a much higher price than alum. The ground rice is added to the bicarbonate of soda and the alum for the purpose of preserving the compound from injury by damp. It was stated that 3lb. of flour kneaded with water and a sufficient quantity of the baking powder will yield about 4lb. of bread. For this purpose about 360 grains of the baking powder would be used, of which four-tenths would be alum. The reaction or mutual action between the alum and the bicarbonate of soda produces hydrate of alumina, in which form it is eaten in the bread made with the baking powder. After hearing the evidence of experts, the Court found that the appellant unlawfully sold to the respondent a baking powder, which is an article used for food within the meaning of the Act, mixed with alum, which is injurious to health. The magistrate convicted, and the sessions affirmed the conviction, but a case was stated upon these points of law:—(1) Whether a baking powder is an article of food or an article used for food within the meaning of the Act; (2) whether, if baking powder is an article of food or used for food, there is evidence to support the finding that the appellant sold the same to the respondent mixed with an ingredient—*i.e.*, alum—injurious to health. The question in substance was whether the magistrates were right in holding that the baking powder was an article of food or an article used for food within the meaning of the Sale of Food and Drugs Act, 38 and 39 Vict. c. 63, and, if so, whether there was evidence that the appellant sold the same mixed with an ingredient injurious to health, upon which the seller appealed.

Sir R. Webster (with Mr. Brynmor Jones, Q.C., and Mr. Macmorran) appeared on his behalf and argued that the baking powder is not an article of food, but rather an ingredient or mixture used in the preparation of an article of food—that is, bread or pastry. Here it was not the bread, but the baking powder, which was sold by the appellant, and surely the powder is not an article of food?

Mr. Finlay, Q.C. (with Mr. Rhys Williams), appeared for the respondent and argued that the powder was an article of food, and one of its elements or ingredients was alum, which was admitted to be injurious to health. It was as much an article of food as pepper or salt, which were condiments, but were not the less articles of food. Salt was one ingredient in the bread, and the baking powder another.

Sir R. Webster, in reply, said the Act only applied to articles used as or for food, and salt was so used, but the baking powder was not. And as to alum, he said it had been doubted by Mr. Bulwer, the Recorder of Cambridge, whether alum, even if deleterious to health, could be regarded as an article of food ("Warren v. Phillips," 44, *Justice of the Peace*, and 68, *Law Times Reports*); and the baking powder, or the alum used in proper proportions, would not be injurious to health. And even if it were true that the powder was mixed with alum and made part of the bread, the bread would be the article of food adulterated. But the information was not against the baker; it was against the seller of the baking powder, and that was not *per se* an article of food. In this case, then, what was the "article of food" sold by the defendant which was adulterated?

The Court said that as it was a matter of general interest they would take time to consider their judgment.

A WELL MERITED FINE.—The Wolverhampton stipendiary last week inflicted penalties of £10. and £5. upon a woman named Nancy Worrell and her son, Moses Worrell, milk dealers, for refusing when asked to sell milk to an inspector. In order to prevent samples being taken they emptied a can of milk down a gutter.

THE QUALITY OF MANCHESTER GAS.—Numerous complaints were made recently with regard to the quality of the gas supplied from the Manchester Corporation Gasworks. In many cases it has been found necessary to supplement the light from the gas by the use of oil lamps and candles. It is stated that the low illuminating power of the gas is due to the quality of the coal the authorities at the gasworks obtained during the stoppage in the coal trade. In order that the full supply of gas might be kept up and that the stock in hand might not be unequal to the demand for gas during the dark nights of winter, the Gas Committee had to purchase whatever coal they could get, and not to be too particular as to its quality. This is the explanation of the complaints that are being made. It is hoped that the gas will soon have regained its usual quality.

Laboratory Notes.

ANALYTICAL, PHYSICAL AND TECHNICAL.

A PURE IRON.

PROFESSOR ARNOLD recently produced, with the aid of aluminium, a sound ingot and bar containing 99.81 per cent. of pure iron. So far no absolutely carbonless iron has been obtained commercially. An analysis of Professor Arnold's bar by Mr. R. A. Hadfield showed the following composition:—Carbon, 0.07 per cent.; silicon, 0.04 per cent.; sulphur, 0.03 per cent.; phosphorus, 1.015 per cent.; iron, 99.81 per cent.; total, 100.035 per cent. Its specific gravity was 7.863; limit of elasticity, 18 tons per square inch; breaking load, 23 tons per square inch; elongation, measured on 2 inches, 49.25 per cent.; reduction of area, 69.60 per cent.; fracture, silky.

THE PTOMAIN OF INFLUENZA.

The ptomaine extracted from the urine in cases of influenza is a white substance crystallising in prismatic needles, soluble in water, and of a slightly alkaline reaction. It forms a hydrochlorate, a chloroplatinate, and a chloraurate, all crystalline. It gives a brownish precipitate with phosphotungstic acid, a yellowish with phosphomolybdic acid, a yellow with picric acid, and a red with tannic acid. The composition of this base is $C_9H_9NO_4$. It is poisonous, inducing a strong fever and death in eight hours. It is not met with in normal urine.

PREPARING OAK TANNINS WITH ACETONE.

In connection with the preparation of oak tannins by using acetone as a solvent, Messrs. Trimble and Peacock have been making some experiments. The use of ether of sp. gr. 0.750, acetic ether, and water are all attended with objections on account of price or slowness of the solvent action. That acetone is efficient the comparison of the results obtained with a sample of powdered nutgalls clearly shows, since commercial ether extracted 59.77% of solids, and acetone 62.24%. Moreover, there is little or no difficulty now in getting acetone, as within the past few years acetone has appeared in commerce in a nearly pure form. Its solvent action has been suggested for several plant principles, but thus far, little, if any, reference has been made to its use as a solvent for tannin, although there is good reason for believing that some manufacturers are using it for the extraction of nutgalls. It is cheaper than ether, but more expensive than alcohol. It is a better solvent of tannin than either of these, and extracts the tannin with less sugar and other carbohydrates, because of its poor solvent power over these. Its low boiling point, 56.5°, renders its recovery easy and rapid, without danger of decomposition to the tannin.

TESTING PHENACETIN.

The following tests will be found useful in testing the purity of phenacetin, more particularly for acetanilide, which is the most common adulterant:—Phenacetin, boiled with potash, yields alcohol. Acetanilide does not. Another very delicate test is to heat with potash and chloroform. If acetanilide is present, phenyl-carbamine is formed. Pure phenacetin does not form it.

To detect parphenetidin in phenacetin, melt 2.5 grammes of chloral hydrate in a test tube, and add 0.5 gramme of the sample; pure phenacetin will dissolve to a colourless solution, becoming pink after some time. A trace of parphenetidin will produce a dark violet to a reddish or bluish violet.

THE RAPID ESTIMATION OF MANGANESE.

The following process is suggested by Mr. Jones for the rapid estimation of manganese in manganese bronze:—Dissolve five to ten grammes of drillings in nitric acid of 1.20 sp. gr., using a large beaker to avoid frothing over. An excess of acid must be avoided, as it interferes with the precipitation of the copper by hydrogen sulphide. When solution is complete, transfer to a 500 c.c. cylinder without filtering out the precipitated stannic oxide. Make up to 300 c.c. and pass a rapid current of hydrogen sulphide from a Kipp's apparatus until the supernatant liquid is colourless. Decant off through a dry filter, 180 c.c. corresponding to three or six grammes of sample, and boil down rapidly to about 10 c.c. Transfer to a small beaker, and add 25 c.c. of strong nitric acid. Boil down one-half, make up with strong nitric acid, boil, and add one spoonful of potassium chlorate. Boil ten minutes and add another spoonful of potassium chlorate. Boil till free from chlorine, cool in water, and filter on asbestos, using filter pump. Wash with strong nitric acid through which a stream of air has been passed. When free from iron, wash with cold water until no acid remains. Place the felt and precipitate in the same beaker, and dissolve in ferrous sulphate, using five c.c. at a time. Titrate back with permanganate until a pink colour remains. Deduct the number of c.c. used in titrating back, from the number of equivalents of ferrous sulphate used, and the remainder shows the manganese in the amount of sample taken.

Permanganate Solution.—Dissolve 1.149 grammes potassium permanganate in 1,000 c.c. water; one c.c. equals one mgm. manganese.

Check by dissolving 0.1425 grammes ferrous-ammonium sulphate in a little water and acidulating with hydrochloric acid. This should precipitate ten mgms. of manganese. If not, apply the factor of correction.

Ferrous Sulphate Solution.—A solution of ferrous sulphate in two per cent. sulphuric acid, so dilute that five c.c. corresponds to ten c.c. permanganate solution. This is best made by trial and dilution.

ESTIMATING SULPHUR IN PYRITES.

The following method which is based upon the use of bromine as an oxidizer is vouched for by Mr. Herreshoff, of the Nichols Chemical Co., U.S.A. After preparing the sample in the usual way, the following method is adopted:—Weigh out one gram, introduce into a No. 6 lipped beaker, cover with watch glass and add 20 c.c. bromine solution, mix by rotating beaker and let stand 10 minutes in the cold. Add 10 c.c. nitric acid, mix as before and let stand 10 minutes longer in cold. Finally place beaker on steam bath, and when the solution becomes quiet remove clock glass after rinsing and evaporate to dryness. Add 10 c.c. hydrochloric acid, immediately cover beaker with clock glass, and when violent action ceases again remove clock glass after rinsing, and evaporate to dryness once more. Finally, take up with a solution of 20 c.c. hydrochloric acid in 100 c.c. hot water, let stand 10 minutes, filter through a 10 c.m. paper, and wash thoroughly three times. Scrape residue from paper and ignite on platinum foil. If any sulphur present a fresh portion of sample must be weighed out. If operation be carried out as above, the sulphur will be completely oxidized.

Heat filtrate on steam bath and add barium chloride solution from a burette, drop by drop, stirring briskly. Add 35 c.c. and let solution stand one hour on steam bath, filter through 10 c.m. paper, and wash thoroughly three times with hot water. Ignite and weigh barium sulphate. After calculating per cent. sulphur add 0.2 to result. For example, if calculation equals 29.80 per cent., report 30 per cent.

The barium sulphate is precipitated slowly because under such conditions in a hot solution experiment has proved that the precipitate separates in purer form. If precipitated by adding barium chloride in a stream, the precipitate encloses salts while forming, giving high results. The 20 c.c. hydrochloric acid is added to keep the iron in solution, but it dissolves a certain amount of barium sulphate. The 0.2 is added to correct this; distilled water and strictly pure chemicals must be used.

To prepare barium chloride solution dissolve one part of the salt in 10 parts of water.

The bromine solution is best prepared by taking about 75 grams potassium bromide, add 50 c.c. water and when nearly dissolved 50 c.c. bromine. Stir a few minutes and when nearly dissolved introduce into glass stoppered bottle of 500 c.c., add a little more water, shake gently and carefully a few minutes, finally nearly fill bottle with water and shake again. After a few minutes most all the bromine will be dissolved.

The method seems to have given very satisfactory results on the whole.

THE PURIFICATION OF RESIN.

A NUMBER of processes have recently been patented for the purification of resin for the manufacture of varnishes. One process consists of melting the resin and passing through it a current of chlorine gas, acidifying with sulphuric acid, washing with boiling water, and finally with hot water containing nitric acid.

Another process consists of melting and then boiling the resin with a saturated solution of salt. After boiling for some minutes in a solution of chromic acid or a solution of bichromate of potash with twice its weight of sulphuric acid, it is washed with a slightly ammoniacal water.

Another method consists in heating the resin with a mixture of chalk, dioxide of manganese and potassium bichromate and filtering through sand. Heating with powdered zinc, with or without sodium bisulphate, has also been suggested. Sulphuric acid and zinc chloride at high temperatures have also been tried.

Seemingly the best process consists of first filtering to separate insoluble matters and dirt, then heating to about 150° C. with 5 per cent. of zinc chloride for an hour or two, and then adding 12% of bichromate in the form of a powder. After sufficient heating the mass is allowed to cool down to 100° C. and is filtered. Lastly we have to mention purification by anhydrous sulphuric acid with heat under pressure, in a sheet-iron cauldron which can be heated by super-heated steam and fitted with a cover capable of resisting a pressure of 5 kilos to the cubic centimetre.

In this 100 kilos. of the resin to be purified are placed, heated to fusion, the pressure raised to 4 kilos., and the sulphuric acid added. The whole is heated to 100° C. for an hour when it is left to cool, and washed with boiling water. The sulphuric acid process and the zinc chloride process are often worked in conjunction with each other.

Reports of Companies.

THE FORTIS POWDER AND EXPLOSIVES CO.

THE report of this company states that the directors regret that the acquisition of the Flameless Explosives Company's business has proved not to be so advantageous as was anticipated. Up to the time of this acquisition the company was making steady progress in Belgium. Upon the introduction of forticine into the United Kingdom very considerable difficulties presented themselves as to the importation, storage, and railway transport of the company's manufactures; but when these difficulties, after great but unavoidable delay, had been overcome, forticine was so well received by the users of explosives as to encourage the directors in the belief that they would be able to make rapid headway in the near future. These hopes were, however, shattered by the terrible disaster which occurred at the company's factory at Hérenthals, Belgium, on March 24th last, by which three of the most important buildings in the factory were destroyed, while the directors have to deplore the loss of valuable lives. This misfortune entailed an absolute cessation of work through the suspension of the licence, and the necessity for the reconstruction of the demolished buildings, and it is only within the last few weeks that the manufacture of forticine has recommenced. The profit and loss account for the year shows an expenditure of £6,310., including £1,795. for preliminary expenses, £398. salaries of London offices £491. salaries of managing directors, £500. directors' fees, and £650. "fees for special services." In addition to the £6,310., the year's expenditure, £641. is put down for "directors' fees for the years 1890-91, not included in last year's accounts because waived by directors, but which waiver has now been revoked," and this, together with £1,255., the balance of profit and loss for the previous year, makes a total debit balance of £8,206.

THE NEW TAMARUGAL NITRATE CO., LIMITED.

The directors report that the net profit, inclusive of the sum of £471. brought forward from last year, amounts to £45,946., and there remains a net balance of £6,946. Out of this balance the directors propose to add £1,000. to the depreciation fund, bringing that fund up to £4,000., and they recommend a dividend of 2½ per cent. on the ordinary shares (free of income tax), payable on December 21st, which will absorb £5,007., leaving a balance of £938. to be carried forward. The low exchanges have greatly reduced the amount of the profit earned in the first half of the year. The year commenced with an exchange of 19d.; but on the date the accounts were closed exchange had fallen to 15d., and at this rate all realisable assets at July 31st last have been converted. The balance at debit of exchange suspense account on July 31st, 1892, amounting to £5,540., has been written off to profit and loss account. The prices for nitrate during the year have been better than those realised in the previous year. Since the accounts were closed, the directors have sold nearly all the remaining production of the year 1893 at remunerative prices.

WOODHOUSE AND RAWSON UNITED, LIMITED.

Under a winding-up order made against this company on May 17th last, accounts have at length been submitted, accompanied by the observations of the Official Receiver and provisional liquidator (Mr. C. J. Stewart). The gross liabilities are returned at £212,628., of which £14,713. are expected to rank, with estimated total assets £211,772., subject to claims of debenture-holders £166,482., and to preferential debts £940., resulting in an estimated surplus of £29,636. The deficiency as regards contributories is £448,321. The Official Receiver states, however, that the receiver for debenture-holders does not concur in the valuation of the assets as given in the statement, his opinion apparently being that it is doubtful whether they will realise sufficient to pay off all the claims of the debenture-holders. It appears that the company was registered in July, 1889, the signatories to the memorandum and articles of association being the Right Hon. Lord Aberdare, G.C.B., P.C.; Mr. Philip Rawson, Sir Thomas H. Farrer, Sir John Stokes, K.C.B.; Sir Albert J. Leppoc Cappel, K.C.I.E.; Colonel C. E. Howard Vincent, C.B., M.P.; Sir John Coode, K.C.M.G.; and Mr. F. L. Rawson. The Official Receiver states that the business has latterly been carried on at 88, Queen Victoria-street, E.C., the registered office; at Cadby-hall, Kensington, and Cornbrook Telegraph Works, Manchester (light engineering works); and Strand-on-the-Green, Chiswick (electric and steam launches). In addition, the company had at the date of the winding-up order, agencies or branches at Birmingham, Bradford, Glasgow, Hull, Dublin, Milan, Vienna, Amsterdam, Johannesburg, Kimberley, Cape Town, Durban, Bombay, Yokohama, Sydney, Melbourne, Santiago, and New York. The company had also at various times agencies and branches at other places throughout the world, but all except the above had been closed before the date of the winding-up order. The company was formed for the primary purpose of amalgamating the businesses of Woodhouse and Rawson (Limited), electrical engineers, Woodhouse and Rawson

Electric Supply Company of Great Britain (Limited), Woodhouse and Rawson Electric Manufacturing Company (Limited), C. L. Baker and Co. (Limited), and Woodhouse and Rawson Electric Contract and Maintenance Company (Limited). The principal reason assigned in the prospectus for the amalgamation of these companies was the necessity for an improved organisation to meet the growing demands of the business of Woodhouse and Rawson (Limited). The Official Receiver has examined the profit and loss account of that company, on which a profit of £21,440. is represented to have been made for the year ending June 30, 1888, and discovers that a large portion of the amount arose by reason of the assumed value of various interests in other companies. He asserts that he has not seen the accounts in the liquidation of Woodhouse and Rawson, Limited, which commenced in September, 1889, and consequently has at present no means of informing himself precisely to what extent those "profits" have been realised, but he believes that a large portion of them was illusory. All the businesses are stated by Mr. F. L. Rawson to have been profitable prior to the amalgamation, with the exception of the Woodhouse and Rawson Electric Manufacturing Company and the Woodhouse and Rawson Electric Contract and Maintenance Company. The nominal capital of the company was originally £350,000., and was increased on February 2, 1891, to £550,000 divided into 50,000 preference and 60,000 ordinary shares of £5. each. The Official Receiver, after entering into further details refers to prospectuses issued by the company in which representations were made as to the flourishing state of its business, in evidence of which copies of the directors' report and balance-sheet, &c., for the year ending July 31, 1891, were enclosed for the information of intending investors. In addition to the issue of prospectuses to the public, subscriptions for shares, &c., were invited by means of advertisements in the leading newspapers. The Official Receiver proceeds to refer to considerable length to the operations of the company and to the accounts issued from time to time, and states that, notwithstanding the alleged prosperity of the company as described in the annual reports, it is a fact that about December, 1891, the directors found it necessary to have recourse to borrowing money for the purpose of carrying on the business. The accounts for the year ending July 31, 1892, were received with great dissatisfaction by the shareholders, and at a general meeting held in December last a consultative committee was appointed to investigate the company's affairs, and has since reported thereon very unfavourably. The Official Receiver observes that Mr. F. L. Rawson has furnished a detailed statement as to the causes which have led to the company's insolvency; briefly given these are (1) that the industrial portion of the business was during the earlier stages of the company's history "unduly pushed under inadequate supervision;" and (2) that heavy losses were incurred as a result of the litigation between the company and the Edison-Swan United Electric Lighting Company, and also by reason of the general depression in trade and finance, necessitating the curtailment of some portions of the company's business, and that while these difficulties were in course of being overcome, the company's operations were brought to a standstill by the action of the consultative committee, whose report, presented after some delay, was absolutely destructive to the company's credit and reputation. The Official Receiver concludes a long and elaborate report by stating that there are a number of matters into which he proposes to make further inquiry, and it is intended to apply for a public examination of certain of the company's officials.

THE LEGALITY OF LABORATORY STILLS.

THE following case, which is of considerable interest, was heard recently at Paisley:—Zechariah John Heys, Zechariah Henry Heys, and Zechariah George Heys, trading under the firm of Zechariah Heys and Sons, makers of dyes, South Arthurlie, Barrhead, were charged at the instance of Mr. Peter Ryder, of the Inland Revenue Office, Paisley, with having contravened the second section of the Acts 9 and 10 Victoria, cap. 90, in so far as on 29th September, in their premises at South Arthurlie, they, not being then and there persons known as regular makers of stills, nor being licensed distillers, rectifiers, or compounders of spirits, or vinegar makers, did keep and use a still without having taken out or having in force such licence as was required under the said Act, whereby they were liable in a penalty of £50. Respondents pleaded not guilty, and were defended by Mr. William Becket, writer, Glasgow, while Mr. Shearer appeared for the Inland Revenue authorities. Evidence was led, in the course of which it was stated that the still was used in the laboratory for concentrating methylated spirits, so as to produce absolute alcohol, which was afterwards used for testing oils in order to determine the fatty matters in them. The still in question, it was also pointed out, was practically a toy, useful only for experiments in a laboratory. Mr. Shearer, on behalf of the Inland Revenue, said the prosecution was not for the purification of the methylated spirits, but for keeping the still without permission from the necessary authorities. The Bench held the charge proven, and imposed a modified penalty of £1. 1s.

Correspondence.

* * We do not hold ourselves responsible for the opinions expressed by correspondents.

AIR-BLOWING STEAM JETS.

(To the Editor of the Chemical Trade Journal.)

SIR,—A month or two since many of the technical journals, under the heading of "Duplex Nozzles," published certain disparaging statements as to the status of an old and tried friend, viz., the solid, simple, or central steam jet as applied to blowing purposes. As strong Conservatives in this matter, we ask you to allow us to reply on the other side.

Sir William Siemens was, we believe, one of the first to claim higher efficiency for the annular over the central or solid steam jet for blowing purposes. We had, however, supposed that no one in these days who had given the subject any practical consideration would now support the proposition. It should, however, be noticed in the first place that a nominally annular jet is not really so unless the air, or whatever other fluid is to be propelled, is admitted into the annulus through the centre as in the blowers designed by Sir William Siemens. In the duplex nozzle referred to above not only is no provision made for admitting air inside the annulus, but the annular jet itself acts as a shield to prevent access of air to the central or solid jet. This explains the advantage of the interrupted annulus of the duplex nozzle, the three or four jets in the ring allowing access of air to the central jet as well as all round themselves.

We have made the subject of jet blowers a special study for the last ten years, and, with respect to the form of nozzle, have come to the definite conclusion that the central or solid jet is the most efficient for all ordinary purposes, and that any departure from this not only increases the first cost and adds useless complications, but actually detracts from the efficiency.

Having these very decided opinions, we were rather surprised at the prominent position given in the technical press to the alleged advantages claimed for the duplex nozzle. To leave no room for doubt, we obtained one of the duplex nozzles (as well as the combining tube supplied with it) and conducted a series of tests with it, the results of which we give below. The nozzle has a central jet 3.32" diameter and three jets in a ring surrounding the central jet and having a variable opening, the full maximum area being equal to that of a solid jet of upwards of 7 millimetres in diameter.

The duplex nozzle was regulated so as to give the same effect as a solid central jet of 4 millimetres diameter, which is considerably larger than our average size. The size of nozzle, viz., 4 millimetres, was taken as a standard for comparison as being the size of nozzle in the third type of blower referred to later on.

The position of the regulating screw in the duplex nozzle was found after making several tests with various forms and sizes of combining tubes, giving equal volumes of outlet air at equal pressures. The air pressures tested were $\frac{3}{8}$ " water column, which may be taken as a normal asphalt pressure, 1" water and 2" water.

To arrive at the proportional efficiency of the nozzles, an air receiver of a certain capacity was filled with cold dry air at 20lb. pressure above the atmosphere and emptied first through the duplex nozzle, with the regulator in the proper position, and then through the simple nozzle. This was repeated several times, and it was found that the duplex nozzle reduced the pressure from 20lb. to 5lb. in twenty-five seconds, whereas the simple nozzle giving the same effect required forty-five seconds. In other words, the duplex nozzle to give equal effect requires 80 per cent. more steam than the simple central nozzle.

We presume, however, that the efficiency of the nozzle as such is of secondary consideration, and that the real question of interest is as to the relative efficiency of the complete blowers. To ascertain this a series of experiments were made with the duplex nozzle and the combining tube supplied with it with our own blowers of various sizes and with a third form of blower which has recently been *en evidence*. The air pressures tested with were as mentioned above— $\frac{3}{8}$ ", 1", and 2" water column—the corresponding steam pressures being 16lb., 42lb., and 70lb. above the atmosphere.

The net result of the series of experiments is to show that to do a given quantity of work where our blower required a unit weight of steam, say 1lb., the duplex arrangement used between 2½lb. and 3¼lb. and the third form of blower from 2lb. to 4¾lb.

As the question of forced or assisted draught is continuously coming more to the front, and as the steam jet offers the simplest and for the most purposes the best form of blower, we think the figures given above should be of interest to many of your readers.—Yours, &c.,

MELDRUM BROS.

ISINGLASS CUTTING MACHINES.

A Correspondent writes asking for the name of a maker of an isinglass cutting machine. Information on this point can be addressed to the office of the Journal.

ANSWERS TO CORRESPONDENTS.

H. B. (Swansea).—A good deal no doubt is used as an antiseptic in the textile and weaving industries, Rochdale, Stalybridge, and that way might do you some good.

A. J. B. (Lisbon).—We have the matter in hand.

A. W. W.—(1) It was only printed in this country in our columns. It is not in pamphlet form, but can be had in the back numbers which are as cheap as the pamphlet would have been. (2) We do not know of one that we could recommend. (3) The report can be had from Messrs. Eyre and Spottiswoode, East Harding-street, London. (4) It was not a pamphlet. You refer, however, we think, on Mr. Eustace Carey's address at Liverpool. The same was published in full in the *Journal* of the Society of Chemical Industry (November number), copies of which can be had from Mr. Creswell, Palace Chambers, 9, Bridge-street, Westminster.

THE GAS SUPPLY OF LONDON AND LEEDS.

LONDON.

The quality of the gas supplied to the City of London for the week ending December 16th was good. According to the report of Mr. W. J. Dibdin, chemist and superintendent gas examiner to the London County Council, the tests made at the various testing stations showed no deficiencies in illuminating power. The following figures have been prepared from the report, and show the average composition of the gas calculated on the mean test:—

Company.	No. of districts tested.	Illuminating power (in stand. sperm candles).	Sulphur. Grains in 100 cb. ft.	Ammonia. Grains in 100 cb. ft.	Sulphuretted hydrogen.
		Mean average.	Mean average.	Mean average.	
Gas Light and Coke Co.	12	16.45	11.55	0.3	Nil.
South Metropolitan Gas Co.	6	16.63	12.18	0.3	Nil.
Commercial Gas Co.	2	16.25	11.60	0.4	Nil.

The standard gas supplied by these companies should have an illuminating power of 16 sperm candles, and contain not more than 22 grains of sulphur and 4 grains of ammonia per 100 cubic feet of gas on an average of three days, with a pressure of one inch between sunset and midnight, and six-tenths of an inch between midnight and sunset.

LEEDS.

According to the report of Mr. T. Fairley, F.I.C., gas examiner for Leeds, the total proportion of sulphur contained in the Leeds gas during the month ended December 14th, 1893, has averaged 14.69 grains per 100 cubic feet. The following are the results of tests made at the Works in grains per 100 cubic feet:—

Place.	Date when Tests were made.		Total Sulphur.	Ammonia.	Carbonic Acid.	
	Nov. 1893.	Dec. 1893.			Weight.	Volume.
Meadow Lane....	16, 23, 30.	6, 12.	10.84	1.59	65.20	0.08
New Wortley	15, 21.	2, 7, 12.	17.16	2.09	65.20	0.08
York Street	17, 22, 29.	5, 14.	10.97	1.76	57.05	0.07
Average at Works	..	..	14.09	1.84	65.20	0.08
Average at East Parade	..	..	14.36	1.35	73.35	0.09

During the month the average illuminating power of the Leeds Gas tested at 17, East Parade, calculated to a uniform consumption of 5 feet per hour, and corrected for variations in temperature and pressure to a temperature of 60° Fahr. and a barometric pressure of 30 inches, has been in standard candles (burning 120 grains of sperm per hour):—Standard argand, 24 holes, 17.7; standard batwing, 18.4; Sugg's illuminating power meter, 17.7.

INSTITUTE OF CHEMISTRY EXAMINATIONS.—The pass list of the examination held from Monday, 11th, to Thursday, 14th December, 1893, for the Associateship of the Institute contains the following names of candidates examined in the New Laboratories at 30, Bloomsbury-square, the following eleven have passed:—E. A. Andrews, Mason Coll., Birmingham; G. E. Brown, Mason Coll.; R. M. Caven, University Coll., Nottingham; R. P. Charles, King's Coll., London; P. H. Kirkaldy, King's; C. A. Mitchell, King's; H. B. Stocks, University Coll., Liverpool; H. Tate, Royal University, I.; W. H. Willcox, University Coll., Notts; S. B. Wright, student under E. G. Clayton, F.I.C., and King's Coll., London; and H. S. Young, King's Coll. Of candidates examined in Dublin the following five have passed:—W. S. Barratt, T. Byrne, P. M. Davies, H. E. Ivatts, and C. M'Mullan, all trained at the Royal Coll. of Science, Dublin. Of candidates examined in Glasgow the following six have passed:—Thomas Chambers, Yorks. Coll. and Glasgow and West of Scotland Tech. Coll.; H. Findlay, R. Fulton, jun., W. Hannah, F. W. McKillop, each of the Glasgow and West of Scotland Tech. Coll.; and N. McCulloch, Glasgow.

Market Reports.

THE COPPER MARKET.

Messrs. Harrington and Co., in their fortnightly report dated Liverpool, December 18th, 1893, state:—The Chili charters for the past fortnight are cabled as 1,500 tons, making the total since 31st December last 20,450 tons, against 21,050 tons same time last year. Exchange, 12½d. During the past fortnight the market for g.o.b's and g.m.b's has been active, and fully 10,000 tons sold at prices ranging from £43. 16s. 3d. cash and £44. 7s. 6d., down to £43. 3s. 9d. and £43. 13s. 9d. respectively, closing firmer to-day at £43. 5s. cash and £43. 15s. three months. The total stocks in Liverpool, Swansea, London, and Havre are 42,467 tons, against 43,577 tons on the 30th ult., showing a decrease of 1,110 tons for the fortnight. The stocks include about 2,100 tons of copper sold but not yet delivered to smelters. The visible supply for the fortnight is 46,729 tons, against 47,284 tons on the 30th ult., showing a decrease of 555 tons. The stock of English g.m.b's in Liverpool remains at 4 tons. Refined and manufactured sorts are dull, quotations being: Tough cake, £46. to £46. 10s.; best select, £46. 15s. to £47. 5s.; Indian sheets, £51.; strong sheets, £54. to £55.; and yellow metal sheets, 4¼d. per lb. The sales of furnace material comprise:—60 tons Portuguese precipitate, at 8s. 9d.; 75 tons English precipitate, at 9s.; 190 tons Chili regulus, at 8s. 9d.; 16 tons Mexican ore, at 8s. 3d.; and 140 tons Portuguese ore, to arrive, at 7s. 9d. per unit.

MISCELLANEOUS CHEMICAL MARKET.

In the alkali trade there is a good all round demand, and prices generally rule firm. In caustic soda especially the reduction of prices has led to considerable activity, both for prompt and forward deliveries. Spot prices (subject to variation for special markets) are as follows, viz.:—f.o.b. Tyne, 77%, £11. 5s.; f.o.b. Liverpool, 74%, £10. 5s.; 70%, £9. 5s.; 60%, £8. 5s.; cream, 60%, £8. per ton, 10-ton lots and upwards. Bleaching powder is in active request at £8 nett per ton, f.o.r. makers' works for prompt delivery. For contracts over 1894 £7. 5s. nett per ton. Chlorate of potash continues to decline somewhat in value for near delivery, spot quotations being 8d. per lb., and for 1894 delivery 7¼d. Chlorate of soda 8¼d. prompt, and 8¼d. forward. For soda ash prices are more settled. Alkali, 58%, £4 2s. 6d. per ton, casks, f.o.b., and in bags, makers' works, £3 15s. per ton—same prices taken for 1894 contracts. For Leblanc ash prices rule about 1d. per degree, f.o.b. for ordinary makes. Bicarbonate of soda £6. 15s. per ton, f.o.b. Soda crystals are selling freely at £2. 10s. to £2. 12s. 6d., bags, f.o.r. makers' works. In vitriol and muriatic acids business continues active, both for prompt and forward delivery. Recovered sulphur without change at £4. to £4. 2s. 6d., f.o.r. makers' works. There is good demand for sulphate of copper at £15. 15s., f.o.b. Acetates of lime remain steady at former quotations—£6. 10s. for brown, in large lots, c.i.f., and grey £9. 15s. to £10., c.i.f. For white powdered arsenic there is a strong demand and with limited supply, price is firm at £13. 7s. 6d. to £13. 10s. nett, f.o.r. Garston, etc. Potash, caustic and carbonate, are in good request, and prices have a tendency to harden. Ammonia salts remain firm at recent advances. Sulphate of iron (green copperas) is meeting with more inquiry, and prices have a firmer tone. Business is more active in nitrate of soda in view of spring requirements, and prices are firm at £9 2s. 6d. to £9. 5s. The advance in prussiate of potash is maintained by the makers' convention. Bichromates are unchanged in position. Oxalic acid rather firmer at 3¼d. per lb.

TAR AND AMMONIA PRODUCTS.

The tar products market has not varied much during the past few weeks. 90's benzol is changing hands at 1s. 5d. to 1s. 5½d., and 50/90's at 1s. 6d. to 1s. 6½d. Crude naphtha, 30%, 8½d. Amongst the heavier products creosote may be quoted as 2d. to 2½d., varying according to position. Crude carbolic, 60's, 1s. 7d. to 1s. 8d., while pitch is firm at 29s., f.o.b. east or west coast. In 30's anthracene there is little doing in either A or B, A commanding 1s. 1d., and B 9d. The Sulphate of Ammonia market remains in much the same position as quoted last week, the holiday feeling still precludes business, but the market is decidedly steady, and the real change in values is nil. The last sale reported is £13. 7s. 6d., but dealers will not buy anything over £13. 2s. 6d. Forward business is meanwhile neglected, but the makers may rest assured that a change will be for the better and not for the worse. The real demand for sulphate is as good as ever, in fact the consumption is increasing everywhere.

LIVERPOOL OIL AND COLOUR MARKET.

WEDNESDAY.

OILS.—The market generally is quiet. Palm oil is stationary, the holidays having stopped all business. Olive is steady and in fairly good demand. Linseed is offering at 20s. 3d. to 21s. 6d. per cwt. for Liverpool makes in export casks, but the demand is very poor. Cottonseed is unaltered in price for Liverpool refined, and is steadily held at the present quotation. Castor oil is firm, with good seconds Calcutta at 2½d. to 2¾d. First pressure French 2¾d. store, and 2¾d. ex quay. Concerning tallow, practically, nothing can be said, as there has been nothing done in this market. Rosins are also without change, either in values or tone of market. Spirits of Turpentine are steady at 22s. 6d. per cwt. Petroleum is quiet, American 4¼d. to 5¼d., according to quality, and Russian refined, 3¾d. per gallon.

COLOURS are steady without alteration in prices. Ochres: Oxfordshire, common, £10., medium, £12., best, £15.; Derbyshire, common, 40s.; medium, 50s., best, 60s.; Welsh, best, 70s., seconds, 50s., and common, 18s.; Irish, Devonshire, 40s. to 45s.; French, J.C., 55s. to 60s.; M.C., 65s. to 67s. 6d. Umber: Turkish quiet; Devonshire, 50s. to 55s. White lead, red lead, and oxide of zinc unchanged. Venetian red, £6. 10s. to £10. Cobalt: Prepared oxide, 9s. 9d.; black, 9s.; blue, 6s. Zaffres: No. 1, 3s. 6d.; No. 2, 2s. 6d. Oxide of iron: Common, £6.; medium, £10.; finest, £20. Zinc oxide, £23. to £25.

THE METAL MARKETS.

LONDON, WEDNESDAY.—Pig iron dull: Scotch warrants closed at 43s. 4½d., Middlesbrough 35s. 5½d. cash, and hematite 45s. 2½d. Copper, quiet: Chili bars, G.O.B.'s and G.M.B.'s, closed at £43. to £43. 5s. cash, and £43. 10s. to £43. 15s. three months. Tin, dull: Straits closed at £74. 15s. to £75. 5s. cash, and £75. 15s. to £76. 5s. three months; Australian, £75.; English ingots, £79. 10s. Lead, steady: Spanish, £9. 11s. 3d. to £9. 12s. 6d.; English, £9. 12s. 6d. to £9. 15s. Silesian spelter: ordinary, £6. 12s. 6d. to £6. 13s. 9d. Nickel, 1s. 7½d. Antimony, £37. 10s. Quicksilver: First hands, £6. 7s. 6d.; second hands, £6. 6s. Copper shares, quiet: Cape, 1⅞ to 1⅞. Copiapo, 1¼ to 1⅞. Libiola, 3⅞ to 3⅞. Mason and Barry, 1⅞ to 2. Rio Tinto, 14⅞ to 14⅞. Tharsis, 4¼ to 5.

WOLVERHAMTON, WEDNESDAY.—Business quiet owing to the holidays, but favourable hopes are entertained. Pig sellers are prepared to book over first two or three months of next year at 44s. 6d. to 45s. for Northampton; 45s. 6d. to 46s. Derbyshires; and 46s. nett cash Lincolns. Staffordshire cinder pigs 39s. 6d. to 40s.; and all-mines 57s. 6d. Bars were £5. 12s. 6d. to £6.; common £6. 10s., merchant sorts; and £7. 10s. best. Sheets, doubles, £7.; boiler plates, £8. to £9. Coal buoyant.

GLASGOW, WEDNESDAY.—Market steady, with moderate business. Scotch done at 43s. 5½d., 43s. 4½d., and 43s. 5d. cash, also at 43s. 7d. and 43s. 7½d. one month; closing with buyers at 43s. 4½d. cash, sellers ask 43s. 5d. Cleveland done at 35s. 6d. and 35s. 5½d. cash; closing with buyers at 35s. 5½d. cash; sellers ask 35s. 6d. Cumberland hematite done at 45s. 6d. cash and one month; closing with buyers at 45s. 2½d. cash. Middlesbrough hematite done at 43s. 3d. cash; closing with buyers at 43s. cash. Copper closes with buyers at £43; sellers ask 2s. 6d. more.

WEST OF SCOTLAND CHEMICALS.

GLASGOW, TUESDAY.

The general market continues very quiet, and it is likely to get quieter still before we have done with the New Year episode, which will entail the stoppage of production for a few days at least. Caustic soda still tends to further cheapening, but bleaching powder seems about holding its own. Bicarbonate of soda has been lowered 5s. All the other lines are as before. Sulphate of ammonia is certainly slower this week, but possibly not more so than may be accounted for by the holiday interruption. There is hardly enough doing to test values with precision, but prompt may be taken as not at present under £13. 10s. to £13. 12s. 6d., f.o.b. Leith, most sellers looking for the higher figure.

In mineral oil and paraffins the condition of contract fulfilling and delivery remains unaltered, being brisk, and likely to remain so for another month at least. A small crude company is likely to announce a 10 per cent dividend at its January meeting, the only case in which anything will have been paid by these Scotch mineral oil companies, as resulting from 1893 balancing. The concern in question is quite a small one.

Chief prices current are:—Soda crystals £2. 10s. nett, Tyne; soda ash £3. 17s. 6d. nett, Tyne; white alkali 48/52, £4. 10s. to £5. nett, Tyne; alum in lump £5. nett, Glasgow; caustic soda, white, 74°

£10. 10s., 70/72° £9. 10s., 60/62° £8. 10s., and cream 60/62° £8. 5s., all nett, Liverpool; bleaching powder £7. 15s. to £8. nett, Tyne; saltcake, 22s. 6d.; borax, English refined, £30., and boracic acid, £37. 10s. nett, Glasgow; bicarbonate of soda, 5-cwt. casks, £6. 10s., and 1 cwt. casks £6. 15s. nett, Liverpool; bichromate of potash, 4½d. nett, for Scotch and English deliveries (for export, 4¼d. nett, f.o.b. Glasgow); bichromate of soda, 3¼d. nett, for Scotch and English deliveries (for export, 3½d. nett, f.o.b. Glasgow); chlorate of potash, 8¼d. less 5%, Liverpool; nitrate of soda, 9s. 3d.; sulphate of ammonia, £13. 10s. to £13. 12s. 6d. prompt, Leith; sal ammoniac, first and second white, £37. and £35. nett, any port; sulphate of copper, £15. 15s. less 5% Liverpool; paraffin scale, hard and soft, 17½d. per lb.; paraffin wax 120° semi-refined 2¾d.; paraffin spirit (naphtha) 4½d. per gallon; paraffin oil, burning, standard No. 1 (grade, 5d. at works, for Scotch buyers (English sales ½d. to ¾d. lower); ditto (lubricating) 865° £4. 7s. 6d. to £4. 10s., 885° £4. to £5. 10s., and 890/895° £5. to £6. Week's imports of raw sugar at Greenock were 4,410 baskets.

TYNE CHEMICAL REPORT.

TUESDAY.

Chemicals are quiet; much business is not expected until after the turn of the year. Prices unaltered: £4. 5s. per ton for sulphur; caustic 70% at £9. 5s., 76/77% £11. per ton.

Bleaching powder, softs, £7. 15s. per ton, nett; hards, £8. per ton, nett; caustic soda, 76/77% £11. per ton, nett; 70%, £9. 5s. per ton, nett; recovered sulphur, 2 cwt. bags, £4. 5s. per ton, nett; soda ash, 48%, £3. 15s. per ton; 52%, £4. 2s. 6d. per ton; 56%, £4. 10s. per ton, nett; alkali, 36%, £3. per ton, nett; white alkali, 48%, £4. 10s. per ton; 50%, £4. 15s. per ton; 52%, £5. per ton, nett; hyposulphite of soda, in 5-7 cwt. casks, £7. per ton; ditto, in 1 cwt. kegs, £7. 15s. per ton, nett; silicate of soda, 75° Tw., £2. 15s. per ton, nett; 100° Tw., £3. per ton, nett; 140° Tw., £3. 17s. 6d. per ton, nett; soda crystals, in casks, £2. 10s. per ton gross weight; in 2 cwt. bags, £2. 10s. per ton nett weight; chlorate of potash, 8½d. per lb. less 6%; pearl hardening £3. per ton, nett; pure white sulphate of alumina, £4. 2s. 6d. per ton, nett; blanc fixe, £7. 10s. per ton, nett; chloride of barium, £7. 10s. per ton, nett; carbonate of alumina, £28. 15s. per ton, nett; aluminate of soda, £33. 15s. per ton, nett; in 5 ton lots, £28. 10s. per ton, nett; hydrate of barium, £10. per ton, nett.

South Durham salt, 9s. to 9s. 6d. per ton net. f.o.b. Tees.

Coals: There is a fair demand, and much negotiation is in progress for business over next year. Prices generally for forward are weaker. For prompt, prices at the moment are unaltered, and the opinion is that we have seen the highest for the present. Quotations:—Best Northumbrian steam, 12s. to 13s. per ton; second qualities, 10s. 6d. to 11s. 6d. per ton; small steam, 5s. 6d. to 6s. per ton; bunker, 9s. 6d. to 10s. per ton; gas coals, in full demand, 11s. to 12s. per ton; coke, steady, 16s. per ton.

HULL PAINT, OIL, AND COLOUR REPORT.

TUESDAY.

OILS.—Holidays appear to be the most interesting and only item of especial interest that can be recorded of the week. The principal imports into Hull up to date in 1893 and 1892 have been: Olive oil, 9,208 tuns, against 12,338 tuns; rape oil, casks 7,184, against 8,640 casks, turpentine 16,832 barrels, against 21,029 casks; tallow, 40,594 cwts., against 31,495 cwts.; oilcakes, 22,009 tons, against 23,000 tons; linseed, 501,385 qrs., against 573,719 qrs.; rapeseed, 95,624 qrs., against 93,358 qrs.; cottonseed, 182,322 tons, against 211,181 tons. Linseed oil during the week has become easier on the spot, with sellers at 19s. 4½d. naked, month 19s. 3d. Jan.-April and May-Aug. remain steady at 19s. to 19s. 1½d., Sept.-Dec., 18s. 9d. naked; export for the week 1,700 cwts. Refined cotton oil about 5s. per ton dearer, spot being quoted at 18s. 7½d., to 18s. 9d. naked, Jan.-April 18s. 7½d.; export for the week being 4,540 cwts. Coast cod oil quiet, £17. to £19. per ton. Sod oil £15. to £17. per ton. Crude resin oil £7. per ton. First pressure castor oil 2¾d. per lb. Engine and cylinder oils from 1s. to 2s. per gallon. Anti-friction greases from £6. per ton.

CAKES.—Linseed cakes firm; 95% pure, £8. 15s. per ton; ordinary, £7. 5s. to £7. 10s.; Russians, £8. 10s.; Polish, £8. 15s. Cotton cakes: A firmer tone with good demand; best makes, £5. 5s. per ton spot; Jan.-April, £5. to £5. 2s. 6d. Rape cakes: East India, £4. 10s.; Black Sea, £4. 2s. 6d. Feeding cakes, £5. 10s. per ton.

PAINTS.—The trade in these goods remains only indifferent, the firms engaged in the export business certainly having the advantage; many firms interested in the home trade having good orders on their books and good prospects for the new year. Oxide of zinc, £22. 10s. per ton. Oxide of iron, dry, £9. to £18. per ton. Venetian red,

dry, £5. to £10. per ton. Common black varnish, £5. 10s. barrels free. Oak varnish from 6s. per gallon. Ready mix in various sized tins from £25. per ton. Enamels from 4s. dozen. French ochre, J.C., 60s. per ton ex warehouse. L from 16s. per cwt.

New Companies.

Astraline Syndicate Limited.—CAPITAL £20,000. in £1. each. This company has been formed to trade as refiners, and importers of petroleum and petroleum products, and subscribers to the memorandum of association are:—T. G. Ba Lucas-road, Penge, London, S.E., book-keeper; C. J. S. Garfield-road, London, S.W., house agent; T. Park, 32, street, New Cross, clerk; M. E. Bernard, 107, Cannon London, E.C., clerk; E. C. Woodman, 63, Isledon-road, N.W., clerk; J. T. Concanon, 8, Cavan-street, Albany-road, well, London, stationer; W. C. Chapman, 76, Sussex-road, H clerk.

Penwyllt Dinas Silica Brick Co., Limited.—CAPITAL in shares of £1. each. This company has been formed to certain quarries and brick works in Wales, and to carry on the of brick makers and cement dealers. The subscribers to the andum of association are:—C. S. Kershaw, Glais, near silica manufacturer; G. Palmer, Penwyllt, South Wales, man Scrivens, Glyn Neath, South Wales, foreman; G. P. Ad Brabant-court, London, E.C., shipbroker; W. Bennett, 7, road, London, S.E., master mariner; H. W. Bourneside, We gentleman; G. G. Hutchinson, Stock Exchange, jobber.

Samuel Heap and Sons, Limited.—CAPITAL £70,000. of £10. each. This company has been formed to acquire over the business of bleachers, dyers, fullers, etc., now carried Rochdale by Messrs. S. Heap and Sons. The subscribers memorandum of association are:—C. Heap, Caldershaw, R dyer; W. T. Heap, Eversleigh, Rochdale, dyer; J. S. Hud Scarisbrick New-road, Southport, gentleman; J. N. A. Da Tweeddale-street, Rochdale, married woman; A. Watson Hea dale, spinster; S. Heap, 70, Spotland-road, Rochdale, surgeon Watson, Waterloo, Liverpool, married woman.

Universal Manufacturing Co., Limited.—CAPITAL £1 shares of £1. each. This company has been formed to carry business of cotton waste cleaners, tanners, tallow melters, soap chemical manufacturers, distillers, etc. The subscribers to the andum of association are:—A. W. Hussey, Ormonde House, T road, S.E., engineer; H. E. Opperton, 10, Homedale-road, Kent; G. R. Kilsey, St. Dunstons Chambers, London, E.C., S W. R. Reeve, Ormonde House, Trafalgar-road, London, S chant; F. Cottrell, 13, Ellesmere Villas, South Down, Wir shipper; S. W. Kelsey, St. Dunstan's Chambers, London gentleman; J. A. Remon, St. Dunstan's Chambers, London solicitor.

The Patent List.

This list is compiled from Official sources in the M Technical Laboratory, under the immediate supervision of George E. Davis and Alfred R. Davis, who report upon the value of Chemical Patents.

APPLICATIONS FOR ENGLISH LETTERS PATENT.
Smoke Consumer. W. Pentelow and J. Rutledge. 23,808. December 12.
Precipitating Gold and Silver from Alkaline Solutions. J. S. and C. J. Ellis. 23,825. December 11.
Improvements in Making White Lead. J. S. McArthur. 23,866. December 12.
Apparatus for Drying Bicarbonate of Soda. G. Jarmay. December 12.
Improvements in the Manufacture of Bicarbonate of Soda. 23,890. December 12.
Improved Apparatus for Dissociating Soluble Salts by Electricity. R. Haddan. 23,913. December 12.
Apparatus for Separating Lime from Steam Boiler Feed Water. Silverlock. 23,915. December 12.
Washing or Scrubbing Gas. S. Hersey. 23,931. Dec. 12th.
Automatic Recording Pyrometer. W. Crooke, junr. 23,947. Dec.
Smoke Consuming Apparatus. J. Mutter. 23,959. December 12.
Furnaces for Distilling Cadmium and the like. F. W. Golly. December 13.
Artificial Silk. F. Lehner. 24,003. December 13.
Depositing Metals by Electrolysis, etc. E. Stouls. 24,017. Dec.
Manufacture of White Lead. G. Webb, G. Webb, junr., and A. E. 24,025. December 13.
Metallic Alloys. G. Hookham. 24,063. December 14.
Improvements in the Electro-Deposition of Zinc. M. A. M. Wright and J. H. Richardson. 24,131. December 15.
Smoke Consuming Apparatus. W. Denton. 24,150. December 15.
A New Method of Closing Receivers charged with Compressed Liquefied Gases. E. Ster. 24,165. Decemb 15.

g Residual Products and certain Metallic Ores for the Manu-
 facture of Chlorine. E. J. Hunt. 24,175. December 15.
 ture of English Refined Camphor. J. E. Tenison-Woods, A. J.
 pton, W. Morgan, A. Moy and C. Switbenbank. 24,183. December 15.
 ements in the Manufacture of India Rubber. J. E. Tenison-
 ds, A. J. Campion, W. Morgan, A. Moy and C. Switbenbank. 24,184.
 ember 15.
 g Salt and Forming Blocks thereof by Fusion. R. Haddan.
 57. December 15.
 ements in Varnishes, Paints, Enamels, etc. D. M. Murrow and
 Taylor. 24,214. December 16.
 ture of Ferro-Boron. C. J. L. Leffler. 24,230. December 16.
 ion and Purification of Tannin. O. C. Hagemann. 24,273.
 ember 16.
 tus for the Electrolytic Decomposition of Metallic Salts. C.
 ner. 24,274. December 16.
 ture of Cellulose. C. Kellner. 24,275.
 ture of Cellulose. C. Kellner. 24,287. December 16.

Gazette Notices.

PARTNERSHIPS DISSOLVED.

J. FERGUSON, A. MORISON, and A. H. HAMILTON, paint manufacturers, Glasgow,
 under the style of Ferguson, Hamilton, and Morison, so far as regards A. H.
 Hamilton.

J. HARDMAN and J. PEAKE, chemical manufacturers, Tunstall, under the style of
 Josiah Hardman and Co.

BANKRUPTCY ACTS, 1883 and 1890.

Adjudication.

TODRICK, ARCHIBALD, Vanbrugh Hill, Blackheath, S.E. (trading as the London
 Rubber and Packing Co., Billiter-street E.C., and also as Gavin, Thomson,
 and Co., Croft-street, Deptford, S.E.), india rubber merchant.

IMPORTS OF CHEMICAL PRODUCTS

AT

THE PRINCIPAL PORTS OF THE UNITED KINGDOM.

LONDON.

ending December 16th.

Acid of Lime—
 ates, 200 pkgs. Lister & Biggs
Acid—
 ad, 5 pkgs. F. Stahlschmidt
 87 Beresford & Co.
ium—
 m, 23 c. Major & Field
Oil—
 ad, 7 pkgs. J. Owen
lor—
 any, 4 pkgs. H. Lambert
ony—
 e, 50 t. Smith, Sundius &
 Co.
 tal, 58 t. J. Bamber
os—
 e, 634 Mory & Co.
 la, 16 L. & I. D. Jt. Co.
 m, 30 J. Coppo & Co.
n—
 ad, 13 cks. Beresford & Co.
n Chlorate—
 any, 10 pkgs. Typke & King
8—
 any, 66 cks. R. W. Greeff &
 Co.
 ad, 44 A. Zumbek & Co.
 69 Taylor Bros.
 m, 22 brls. D. C. Thomas &
 Sons
 14 cks. J. L. Lyon & Co.
 102 W. Harrison & Co.
 any, 132
 ad, 45
 23 O'Hara & Hoar
 21
 m, 50 A. Zumbek & Co.
hite of Lime—
 m, 16 pkgs. Leach & Co.
ne—
 any, 10 pkgs. A. & M. Zim-
 mermann
ior—
 any, 1 kg. L. & I. D. Jt. Co.
 206 cs. R. Warner & Co.
 200 S. Figgis & Co.
 100 T. Merry & Son
house—
 gascar, 26 c. Blythe, Greene, &
 Co.
 ar, 32 Patry & Pasteur
 90 L. & I. D. Jt. Co.
 9 Forbes, Forbes, & Co.
 any, 78 Wallace Bros.
 20 E. H. Cousins & Co.
 27 Lewis & Peat
 casa, 27 L. & I. D. Jt. Co.
 cave, 11
 Be, 65 S. Figgis & Co.
 24 Prop. Bull Wf.
 ar, 35 Clarke & Smith
 any, 13 Anderson, Weber, &
 Smith
ic Acid—
 ad, 40 pkgs. J. Owen
 40 H. Evans & Sons

Carbonic Acid—

Holland, 50 pkgs. Deering
 Robotom

Castor Oil—

E. Indies, 125 cs. Anderson, Weber
 & Smith
 Italy, 5 W. G. Frith & Co.
 62 cks. Anderson,
 Weber, & Smith
 " 15 cs. Stebbing & Co.
 10 W. Balchit.
 Belgium, 58 Fuerst Bros.
 30 brls. Burrell & Co.
 France, 30 cks. Colthurst &
 Harding

Caustic Potash—

France, 53 c. Petri Bros.
 50 Spies Bros., & Co.

Chemicals (otherwise undescribed)

Germany, 45 2 pkgs. Philipps &
 Graves
 " 62 51 T. H. Lee
 370 16 A. & M. Zim-
 mermann
 Belgium, 17 Typke & King
 7 Van Oppen & Co.
 Holland, 126 Beresford & Co.

Chloride of Lime—

France, 24 cks. Mead, Son, & Co.

Cream of Tartar—

Spain, 12 pkgs. W. C. Bacon &
 Co.

Dextrine—

France, 20 E. W. Carling & Co.
 7 C. F. Gerhardt
 " 15 B. & F. Wf. Co., Ltd.
 Spain, 6 F. C. Devon & Co.
 Holland, 5 Middleton & Co.
 Italy, 8 Fellows, Morton, &
 Co.
 Germany, 20 bgs. J. Barber & Co.
 300 W. Balchin
 5 pkgs. Prop. Sun Wf.
 100 Hernu, Peron & Co.

Dyestuffs—

Aniline
 A. Turkey, 1 pkge. L. & I. D. Jt. Co.
Annatto
 Denmark, 1 pkge. B. Nind
Argols
 Italy, 48 pkgs. Thames S. T. &
 L. Co., Ltd.

Cochineal

Canaries, 30 pkgs. F. Hurt & Co.
 31 Sperling & Williams

Extracts

Denmark, 20 pkgs. Sorensen & Co.
 Germany, 14 T. H. Lee
 France, 20 Prop. Chmbln.'s Wf.
 115 B. & F. Wf. Co., Ltd.

Gambier

E. Indies, 227 pkgs. L. & I. D. Jt. Co.
 300 S. Barrow & Bros., Ltd.
 " 1,141 Brinkmann & Co.
 445 Adamson, Gilfillan, &
 Co.

Indigo

E. Indies, 391 chts. L. & I. D. Jt. Co.
 11 Ross & Deering
 " 32 Frith, Sands, & Co.
 " 10 F. Huth & Co.
 " 51 Arbuthnot, Latham,
 & Co.
 " 15 H. Johnson & Sons

" 14 Forbes, Forbes, & Co.
 " 40 Elkan & Co.
 " 24 Darling Bros.
 Germany, 14 German Bk. of London
 6 cs. T. H. Lee
Madder
 France, 3 pkgs. Skilbeck Bros.

Myrabolams

E. Indies, 2,737 pkgs. J. P. Alpe & Co.
 660 Baxter & Hoare
 " 221 Darling Bros.
 " 1,661 L. & I. D. Jt. Co.
 200 G. & H. Green

Ochella

Ceylon, 16 pkgs. Beresford & Co.
 Germany, 42 E. H. Cousins & Co.

Saffron

Spain, 4 pkgs. Richardson,
 Spence, & Co.

Shumac

Italy, 150 pkgs. H. Johnson &
 Sons

Tanner's Bark

Natal, 43 t. A. & W. Nesliitt
 58 Flack, Chandler, & Co.
 " 12 Culverwell, Brooks,
 & Co.

Melbourne

43 Anning & Cobb
 47 Leach & Co.

Belgium

44 Leach & Co.

Turmeric

E. Indies, 276 pkgs. Lewis & Peat
 China, 300 Prop. Sun Wf.

Farina—

Germany, 50 pkgs. J. Barber & Co.
 Holland, 100 H. Lorenz
 " 150 C. Tennant, Sons,
 & Co.
 " 100 Skilbeck Bros.
 France, 7 Hernu, Peron, & Co.
 Holland, 50 Prop. Chmbln.'s Wf.

Glucose—

Germany, 25 pkgs. 203 c. Prop.
 Chmbln.'s Wf.
 U States, 1,500 1,500 c. Pearce, Pelley,
 & Co.
 " 200 664 Price Bros.
 " 4,600 7,612 Un L. Co., Ltd.
 " 50 300 B. & N. Wfvs.
 Co.

Germany

15 123 F. Fink & Co.

Holland

200 J. Barber & Co.

France

200 Prop. Sun Wf.
 200 L. Norman &
 Co., Ltd.

San Francisco

2 10 Idris & Co., Ltd.

U. States

500 Mangold & Co.
 " 50 275 Pillow, Jones,
 & Co.

"

150 403 Page, Son, &
 East

"

1,275 1,375 Fellows, Morton
 & Co.

"

1,354 3,112 R. G. Hall & Co.
 " 100 500 Soundy & Sons
 " 50 281 J. Keiller & Son,
 Ltd.

"

100 595 P. Windmuller,
 Mack & Co.

Guano—

Cape, 540 t. D de Pass & Co.

Lead Acetate—

Germany, 3 pkgs. F. Boehm

Manure—

France, 53 t. J. Burnett & Sons
 Belgium, 7½ H. & E. Albert
 Germany, 80 F. W. Berk & Co., Ltd.
 Cape, 7 D. de Pass & Co.
 Germany, 20 W. G. Blagden

Methyl Alcohol—

Belgium, 1 dm. Stein Bros.
 Germany, 9 cks. Lister & Biggs
 U. States, 40 brls. Elkan & Co.
 Lister & Biggs

Mica—

Ceylon, £35 E. Davis & Co.

Naphthaline—

Germany, 36 pkgs. Fleming's Oil &
 Chemical Co.

Ochre—

Holland, 1 cs. 9 pkgs. Philipps &
 Graves

U. States, 98 brls. Page, Son, & East

Paraffin Wax—

U. States, 300 brls. H. Hill & Sons

" 100 Fairclough, Dodd,
 & Co.

" 140 G. H. Frank & Co.

" 1,395 J. H. Usmar & Co.

" 516 pkgs. H. Hill & Sons

Phosphate Rock—

Holland, 100 t. C. J. Capes & Co.

" 100 Little & Johnson

Belgium, 125 R. W. Goid & Co.

U. States, 2,700 Anglo-Conti G. Wks.

France, 270 Lawes Manure Co.

" 450 Anglo-Conti G. Wks.

" 130 A. Hunter & Co.

Belgium, 260 West & Penrose

Pitch—

France, 40 brls. Poth, Hille, & Co.

Plumbago—

Germany, 17 cks. G. Mayor & Co.

" 21 J. Thredder, Son, & Co.

Holland, 17 B. Gallaway

Italy, 40 J. Thredder, Son, & Co.

Ceylon, 50 J. Stiff & Sons

" 97 L. & I. D. Jt. Co.

Potash—

France, 175 c. Petri Bros.

Holland, 22 cks. H. Johnson & Sons

Potassium Carbonate—

France, 200 c. Carey & Sons

Germany, 268 F. Bochin

" 25 pkgs. F. Boehm

France, 100 J. A. Reid

Potassium Oxymuriate—

Belgium, 70 pkgs. G. Boor & Co.

Potassium Sulphate—

France, 50 pkgs. Petri Bros.

Pumice Stone—

Italy, 4 t. Fellows, Morton,
 & Co.

Holland, 12 c T. Hubbuck & Sons

Quicksilver—

Italy, 500 brls. L. & I. D. Jt. Co.

Rosin—

U. States, 5,380 brls. Moore & Hole

" 11 L. & I. D. Jt. Co.

" 514 G. Nutter & Co.

Rosin Oil—

France, 200 brls. Fleming's Oil & Chemical Co.

Saltpetre—

Germany, 225 cks. P. Hecker & Co.
 " 51 J. Hall, Jr., & Co.
 " 700 bgs. E. Packard & Co.
 E. Indies, 371 Co-op. Light Co.
 Germany, 700 Wimble & Co.
 " 20 cks. Brown & Elmslie
 E. Indies, 562 bgs. L. & I. D. Jt. Co.
 Germany, 4 cks. Petri Bros.
 Chili, 14,620 bgs. W. Montgomery & Co.

Soda—

Holland, 110 c. R. W. Greeff & Co.

Soda Crystals—

Belgium, 208 c. G. S. N. Co.

Sodium—

Germany, 4 pkgs. J. Knill & Co.

Sodium Hyposulphite—

Holland, 100 pkgs. F. Bochm

Sodium Sulphide—

Holland, 30 pkgs. R. W. Greeff & Co.

Starch—

Germany, 1,190 pkgs. Horne & Co.

Belgium, 120 T. H. Lee

" 40 Leach & Co.

Holland, 570 C. J. Capes & Co.

" 65 Phillips & Graves.

U. States, 225 Oswego Co.

Stearine—

Belgium, 38 bgs. Hammond & Co.

France, 100 Walbaum & Tosetti

Sulphur—

Italy, 20 t. C. J. Capes & Co.

" 110 A. B. Curtis & Co.

" 100 B. Jacob & Sons

" 100 Soundy & Sons

" 15 J. Kitchin, Ltd.

Tartrac Acid—

Holland, 16 pkgs. B. & F. W. Co., Ltd.

Tin Salts—

Germany, 2 pkgs. H. Lambert

Turpentine—

N. Russia, 52 brls.

U. States, 2,664 Prod. Brokers' Co., Ltd.

Ultramarine—

Holland, 20 cks. Hernu, Peron, & Co.

Yarnish—

Belgium, 4 pkgs. Stobbs, Wilson & Co.

Germany, 1 Schenker & Co.

U. States, 7 Magee Taylor & Co.

Belgium, 5 J. & T. Seddon.

U. States, 12 Beck & Pollitzer.

" 2 Davies, Turner, & Co.

Waste Salt—

Germany, 246 t. Agri. & Horti. Asso., Ltd.

White Lead—

Germany, 21 cks. N. J. Fenner & Co.

Holland, 40 Randall Bros.

France, 18 Burrell & Co.

Germany, 40 Magee Taylor & Co.

" 26 T. H. Willoughby

" 12 J. Knill & Co.

Holland, 73 Ross & Deering

Zinc Oxide—

Holland, 125 brls. M. Ashby, Ltd.

U. States, 150 "

Germany, 88 "

Zinc White—

Holland, 500 cks. Soundy & Sons

LIVERPOOL.

Week ending December 14th.

Acetate of Lime—

New York, 899 bgs.

Acetic Acid—

Rouen, 3 cks. R. J. Francis & Co.

Hamburg, 2 brls.

Albumen—

Hamburg, 3 cks.

Antimony—

Singapore, 400 lbs. Aillon

Valparaiso, 160 bgs. Aramayo

" 31 Hainsworth

Watson

Antimony Ore—

N. Orleans, 187 sks.

Barytes—

Antwerp, 11 cks.

Boracic Acid—

Leghorn, 101 cks.

Borate of Lime—

Valparaiso, 500 sks.

Carbonic Acid Gas—

Rotterdam, 50 tbs.

Castor Oil—

Genoa, 19 cs. Evans, Son, & Co.

" 10 C. Schneider & Co.

Chemicals (otherwise undescribed)

Rouen, 24 cks. Co-op. W'sale Society, Ltd.

Chrome Ore—

Baltimore, 13 brls.

Colours—

Hamburg, 60 cks.

Antwerp, 10 cs. J. T. Fletcher & Co.

Cottonseed Oil—

New York, 100 brls.

Cream of Tartar—

Tarragona, 5 cks. Sachse & Klemm

" 5 "

Barcelona, 10 "

" 15 "

Dyestuffs—

Cochineal

Gr. Canary, 13 bgs. Edward Bros.

" 12 Sperling & Williams

" 10 G. S. Bruce

" 10 Kolp & Co.

Extracts

Fiume, 488 brls. De Clermont & Donner

Trieste, 36 brls. G. Pagan

Bordeaux, 200 cks. Houston & Laurisch

Baltimore, 8 brls. Co-op. W'sale Society, Ltd.

Rouen, 230 cks.

Fustic

Trieste, qty. J. Fletcher & Co.

Salina Cruz, 408 t. 10 c. H. Rooke, Sons, & Co.

Vera Cruz, 3,896 ps. R. B. Watson & Co.

Gambler

Singapore, 170 bgs. 897 bls.

Logwood

Nisao, qty. L. Porlier & Co.

Saffron

Valencia, 3 cs.

Sumac

Palermo, 300 bgs. H. Rooke, Sons, & Co.

" 805 225 bls.

Valonia

Syra, 100 bgs. G. T. Scrinii

Smyrna, 1,056 48 t.

Dyestuffs (otherwise undescribed)

New York, 95 bxs. 25 pkgs.

Farina—

Fiume, 100 bgs. 240 bls. Beimeil & Bash

" 100 C. J. Vander Veen, & Bros.

" 100 A. Braumann & Co.

" 100 "

French Chalk—

Rouen, 4 cs. Co-op. W'sale Society, Ltd.

Glucose—

New York, 200 brls.

Valparaiso, 126 brls. A Gibbs & Sons

" 100 W. & J. Lockett

Lead Acetate—

Hamburg, 1 ck.

Manganese Sulphate—

Hamburg, 1 ck.

Mica—

New York, 30 brls. Richards & Ward

Mineral White—

Trieste, 200 bgs. Schroder & Co.

Naphthol—

Hamburg, 2 cks.

Ochre—

Marseilles, 62 cks.

New York, 48 brls.

Rouen, 54 cks. Co-op. W'sale Society, Ltd.

Paraffin Scale—

Philadelphia, 1,140 brls.

Potash—

Antwerp, 5 dms.

Hamburg, 19 cks.

Rouen, 110 Co-op. W'sale Society, Ltd.

Potash Salts—

Hamburg, 1,000 bgs.

Pumice Stone—

Leghorn, 164 bgs.

Messina, 55

Pyrites—

Huelva, 1,197 t. Matheson & Co.

Rosin—

Bordeaux, 40 cks.

Salicylic Acid—

Hamburg, 1 cs.

Salt—

Valparaiso, 6 pkgs. D. W. Bell & Co.

Saltpetre—

Calcutta, 178 bgs. Ralli Bros.

Hamburg, 100 4 cks.

Soap—

New York, 1 cs. Jerome & Co.

Trieste, 1 "

Marseilles, 4 713 bxs.

Boston, 4 W. Taggitt

Valparaiso, 1 "

Soapstone—

Bordeaux, 100 bgs. G. G. Blackwell

Starch—

Antwerp, 29 cs. J. T. Fletcher & Co.

" 20 "

St. Nazaire, 1 sk.

Baltimore, 899 bgs.

New York, 202 800 sks

Stearine—

Antwerp, 26 bgs.

St. Johns, N.F., 9 cks. C. T. Bouring & Co.

Sulphur—

Catania, 123 brls. 13 cks. 91 bgs.

Tallow—

Boston, 81 tcs.

San Francisco, 1,296 cks.

New York, 86 68 bds.

Philadelphia, 16

Tartar—

Bordeaux, 188 bgs. 18 cks.

Turpentine—

Savannah, 1,803 brls.

Ultramarine—

Antwerp, 50 cs.

Verdigris—

Marseilles, 3 cks.

Bordeaux, 4

Wood Spirit—

Hamburg, 3 dms.

Zinc Ashes—

Rouen, 31 cks. R. J. Francis & Co.

Zinc Oxide—

Antwerp, 115 brls. J. T. Fletcher & Co.

" 115 "

HULL.

Week ending December 16th.

Alum—

Rotterdam, 13 cks. Hutchinson & Son

Aniline Colours—

Flushing, 7 cks. Hutchinson & Son

Asbestos—

Genoa, 1 bg. Wilson, Sons, & Co., Ltd.

Barytes—

Antwerp, 46 cks. Hutchinson & Son

Rotterdam, 46 Bailey & Leatham

Antwerp, 25 Veltmann & Co.

Bremen, 5 Tudor & Sons

" 46 "

Camphor—

Hamburg, 5 brls. 23 tubs. Wilson, Sons, & Co., Ltd.

Caoutchouc—

Hamburg, 1 cs. 4 bls. C. M. Lofthouse & Co.

Castor Oil—

Leghorn, 25 cs. Wilson, Sons, & Co., Ltd.

Chemicals (otherwise undescribed)

Antwerp, 358 pkgs. Wilson, Sons, & Co., Ltd.

Flushing, 5 Branch & Rothemann

Bremen, 1 kg. Veltmann & Co.

Dunkirk, 8 cks. Wilson, Sons, & Co., Ltd.

Colours—

Rotterdam, 7 cks. 1 cs. 10 brls. G. Lawson & Son

" 2 1 cs. 31 pkgs. W. & C. L. Ringrose

Flushing, 21 pkgs. G. Lawson & Son

Hamburg, 15 cs. Wilson, Sons, & Co., Ltd.

Stettin, 20 cks. C. M. Lofthouse & Co.

Rotterdam, 3 J. Good & Son

" 2 cs. Sissons & Co.

Flushing, 43 7 Hutchinsan & Son

Amsterdam, 1 W. & C. L. Ringrose

Antwerp, 45 cks.

Cryolite—

Copenhagen, 3 cks. Wilson, Sons, & Co., Ltd.

Dextrine—

Stettin, 100 bgs. Wilson, Sons, & Co., Ltd.

Dyestuffs—

Allazarine

Rotterdam, 6 brls. G. Lawson & Son

Madder

Rotterdam, 1 ck. J. Pyelach & Co.

" 2 G. Lawson & Son

Farina—

Stettin, 850 bgs. Wilson, Sons, & Co., Ltd.

" 1,000 "

Harlingen, 130 W. & C. L. Ringrose

Rotterdam, 20 Wilson, Sons, & Co., Ltd.

Glucose—

Stettin, 16 cks. Wilson, Sons, & Co., Ltd.

" 500 "

New York, 300 pkgs.

Hamburg, 10 cks. C. M. Lofthouse & Co.

Lead Acetate—

Stettin, 28 cks. Wilson, Sons, & Co., Ltd.

Lime—

Hamburg, 20 brls.

Mica—

Christiania, 1 bx. Wilson, Sons, & Co., Ltd.

Ochre—

Marseilles, 37 cks. Wilson, Sons, & Co., Ltd.

Phosphate—

Bona, 500 t.

Pitch—

Antwerp, 33 cks. J. M. Hamilton & Co.

Rosin—

Rotterdam, 4 cks. Hutchinsan & Son

Savannah, 2,363 brls. G. & J. Ringrose

Soap— Amsterdam, 1 cs. Wilson, Sons, & Co., Ltd. Marseilles, 8 "	Bone Meal— Rotterdam, 101 bgs. J. Rankine & Son	Sulphur Ore— Huelva, 1,975 t. Seville Sulphur & Copper Co., Ltd.	Alumina Sulphate— Rotterdam, 125 cks.
Starch— Antwerp, 20 cs. Wilson, Sons, & Co., Ltd. Rotterdam, 158 pks. Bremen, 396 cs. Veltmann & Co.	Castor Oil— Antwerp, 84 cks. Chemicals (otherwise undescribed) Rotterdam, 6 cks. J. Rankine & Son	Tar— New York, 240 brls. Tartar— Bordeaux, 34 cks.	Caoutchouc— Boulogne, 4 cks. Chloride of Lead— Calais, 6 cks.
Stearine— Antwerp, 32 bgs. Wilson, Sons, & Co., Ltd.	Colours— Rotterdam, 33 pkgs. Cottonseed Oil— New York, 100 brls.	Turpentine— Brunswick, 1,500 cks. Ultramarine— Hamburg, 9 cks.	Dyestuffs— Alizarine Rotterdam, 222 pkgs. Extracts Ghent, 100 cks. Fustic Jamaica, 30 t. Indigo Rotterdam, 31 chts. Logwood Belize, 382 t. Jamaica, 240
Tallow— New York, 138 cks. Wilson, Sons, & Co., Ltd. Rotterdam, 40 W. & C. L. Ringrose	Dyestuffs— Alizarine Rotterdam, 76 brls. 152 pkgs. Annatto Bordeaux, 3 cks. Extracts Antwerp, 25 cks. 1 cs. Rouen, 33 Bordeaux, 50 Madder Rotterdam, 5 cks. J. Rankine & Son	Waste Salt— Hamburg, 1,160 bgs. White Lead— Antwerp, 5 cks. Rotterdam, 10 J. Rankine & Son Zinc Oxide— Antwerp, 33 cks.	Dyestuffs (otherwise undescribed) Boulogne, 67 cks. 13 cs. Ghent, 9 brls. 1
Tar— Marseilles, 50 cks. Wilson, Sons, & Co., Ltd.	Farina— Hamburg, 100 bxs.	TYNE. Week ending December 16th.	Farina— Hamburg, 500 bgs.
Turpentine— Savannah, 553 brls. G. & J. Rawstorn Odessa, 1 ck. Wilson, Sons, & Co., Ltd.	Glucose— New York, 550 brls.	Acetic Acid— Han burg, 4 cks. Tyne S. S. Co.	Glucose— Hamburg, 20 cks. Antwerp, 100 bgs.
Yarnish— New York, 20 brls. Wilson, Sons, & Co., Ltd.	Guano— Tromsøe, 56 sks.	Alum Earth— Hamburg, 51 cks. Tyne S. S. Co.	Phosphate— Ghent, 150 t.
Ultramarine— Rotterdam, 1 ck. J. W. Davis & Son	Lead Acetate— Hamburg, 12 cks.	Barium Carbonate— Rotterdam, 50 cks. Tyne S. S. Co.	Potash— Antwerp, 13 cks. 20 dms.
Waste Salt— Hamburg, 305 bgs. Furley & Co. Dunkirk, 50 Wilson, Sons, & Co., Ltd.	Ochre— New York, 120 brls. Rouen, 22 cks.	Colours— Antwerp, 3 cks. Tyne S. S. Co.	Pyrates— Huelva, 78½ t.
White Lead— Antwerp, 36 cks. Bailey & Leatham Rotterdam, 56 Sissons Bros. & Co.	Phosphates— Antwerp, 500 bgs. Ghent, 1,000	Cryolite— Copenhagen, 3 cks.	Rosin— Savannah, 3,616 brls.
" 27 Johnson Bros. " 16 Blundell, Spence, & Co.	Potassium Carbonate— Hamburg, 5 cks.	Glucose— New York, 50 brls.	Saltpetre— Rotterdam, 300 bgs. Hamburg, 2 cks. Antwerp, 85
Zinc Oxide— Rotterdam, 25 cks. W. & C. L. Ringrose	Pumice Stone— Antwerp, 10 bgs.	Phosphate— Antwerp, 250 t.	Waste Salt— Hamburg, 1,679 cks. 2,100 bgs.
	Pyrates— Huelva, 1,400 t.	Pyrates— Huelva, 1,377 t.	Zinc Oxide— Antwerp, 40 brls.
	Rosin— New York, 1,507 brls. Brunswick, 3,405	Saltpetre— Hamburg, 18 cks. Tyne S. S. Co. " 670 t. Clephans & Wiencke	
	Soap— New York, 1,806 brls.	Soda— Rotterdam, 13 cks. Tyne S. S. Co.	
	Sodium Acetate— Rouen, 25 cks.	Stearine— Antwerp, 13 bgs. Tyne S. S. Co.	
	Starch— Antwerp, 60 bgs. 120 cs. New York, 450 150 sks.	Ultramarine— Hamburg, 8 cks. Tyne S. S. Co.	
	Stearine— Antwerp, 76 bgs. Rotterdam, 15 cks. J. Rankine & Son	Zinc Oxide— Antwerp, 25 brls. Tyne S. S. Co.	
		GOOLE. Week ending December 13th.	
		Alkali— Calais, 2 cks.	

GLASGOW. Week ending December 21st.
Arachide Oil— Rotterdam, 1 tin 8 cks. J. Rankine & Son
Barium Sulphate— Antwerp, 92 cks. 150 bgs.
Barytes— Rotterdam, 44 cks.

GRIMSBY. Week ending December 16th.
Caoutchouc— Rotterdam, 2 bls.
Chemicals (otherwise undescribed) Antwerp, 1 pkge. Hainburg, 32
Dyestuffs (otherwise undescribed) Dieppe, 23 cks.
Farina— Hamburg, 50 bgs.
Zinc Ashes— Rotterdam, 10 cks.

Tar Oil Paris, 20 cks. £50 Tar Salts Antwerp, 2 c. £8 Toluol Rotterdam, 20 pns. £180 Copperas— Bourgas, 10 t. 3 c. £17 Copper Sulphate— Stettin, 2 t. 16 c. £37 Oporto, 1 14 28 Melbourne, 5 80 Cr. am of Tartar— Melbourne, 4 t. 10 c. 10 kgs. £376 Townsville, 5 cs. 4 32 Wellington, 5 20 Dunedin, 10 36 Sydney, 3 11 251 Disinfectants— Amoy, 9 c. £13 Brussels, 4 cs. £10 Brisbane, 3 22 Melbourne, 17 51 Sydney, 4 14 Jamaica, 15 drs. 21 Shanghai, 6 23 Hong Kong, 10 20 dms. 27 Marseilles, 1 t. 18 15 Calcutta, 282 26 Flowers of Sulphur— Melbourne, 1 t. £8 Guano— Mauritius, 50 t. £299 Iodine— Rosario, 1 cs. £31 Manure— Cherbourg, 100 t. 1 c. £450 Rouen, 10 35 Jersey, 81 745 Guadeloupe, 115 2 1,340 Demerara, 17 8 180 Penang, 5 16 80 Tarragona, 14 11 125 Oxalic Acid— Melbourne, 11 c. £16 Phosphoric Acid— Demerara, 2 t. 10 c. £31 Boulogne, 3 15 Potash Crystals— Sydney, 7 c. £30 Toronto, 14 cs. 130 Potassium Bichromate— Melbourne, 10 c. £22 Potassium Chlorate— Melbourne, 3 c. £11 Potassium Cyanide— Yokohama, 5 cs. £24 Saltpetre— Dunedin, 5 c. £6 Brisbane, 1 t. 22 Oporto, 1 9 30 Hamburg, 3 9 76 Gothenburg, 10 10 Melbourne, 2 1 45 Sheep Dip— Calcutta, 59 pkgs. 40 dms. £65 Durban, 250 cs. 750 Jamaica, 30 13 Mossel Bay, 13 c. 25 Pt. Elizabeth, 15 t. 430 Geraldton, 9 21 Soda— Algoa Bay, 5 t. 8 c. £15 Toronto, 9 cks. 18 Soda Crystals— Sydney, 9 c. £6 Townsville, 19 3 Sodium Acetate— Dunedin, 2 t. 11 c. £37 Sydney, 19 17 Sodium Bicarbonate— Brisbane, 1 t. 10 c. £12 Townsville, 1 7 Lyttelton, 1 8 Sodium Sulphate— Ghent, 100 t. £150 Sulphur— Brisbane, 1 t. £16 Natal, 25 3 c. 93 Oporto, 200 brls. 143 Sulphuric Acid— Singapore, 1 t. 5 c. £13 Penang, 20 pkgs. 26 Tartaric Acid— Brisbane, 2 c. £10 Wellington, 3 16 Sydney, 1 t. 2 96 Dunedin, 3 15 Melbourne, 20 kgs. 95	LIVERPOOL. <i>Week ending December 20th.</i> Albumen— New York, 1 t. 8 c. 1 q. £15 Alum— Piræus, 3 t. 10 c. £21 Halifax, 2 2 q. 10 Porto Alegre, 1 6 Alexandria, 9 54 Ammonia (Liquid)— Gr. Canary, 2 c. £5 Ammonium Carbonate— Halifax, 5 c. 1 q. £9 Rotterdam, 1 t. 10 3 50 B. Ayres, 16 29 Leghorn, 10 17 Genoa, 5 8 Portland M., 10 2 17 Marseilles, 8 11 Hioago, 4 2 131 Ammonium Chloride— Smyrna, 3 t. £104 Genoa, 50 12 c. 1 q. 670 Piræus, 5 1 9 Sydney, 1 3 28 Varna, 1 7 45 Trieste, 2 3 72 Marseilles, 2 1 2 75 Salaora, 5 9 Ammonium Nitrate— Cabinda, 5 kgs. £11 Ammonium Sulphate— Valencia, 59 t. 10 c. 3 q. £811 Antwerp, 100 9 1,400 Genoa, 50 17 693 Cullera, 50 18 680 Barbadoes, 20 9 282 Hamburg, 86 5 1,304 Malaga, 50 10 3 700 Las Palmas, 52 17 2 695 Amorphous Phosphorus— B. Ayres, 3 q. £13 Antimony Sulphate— Boston, 1 t. 3 c. 2 q. £145 Bleaching Powder— Baltimore, 134 cks. Boston, 52 Havana, 13 bxs. Malaga, 20 Syria, 10 brls. Borax— Piræus, 9 c. £13 Algoa Bay, 10 15 Vigo, 16 16 Amsterdam, 2 t. 1 2 q. 60 Hamburg, 21 cks. 10 kgs. 150 Vera Cruz, 12 3 17 Oporto, 10 14 Calcium Chloride— New York, 10 t. 3 c. £24 Carbolic Acid— Algiers, 9 c. 3 q. £25 New York, 1 t. 13 2 114 Hong Kong, 25 dms. 10 Castor Oil— Belize, 10 cs. C. C. Castle, 17 Caustic Potash— Havana, 12 c. £15 Caustic Soda— Algoa Bay, 26 cs. 14 bxs. Antwerp, 26 brls. Beyrout, 50 dms. Bombay, 10 Boston, 50 B. Ayres, 100 Carbarien, 50 Cienfuegos, 10 Ghent, 6 Havana, 9 Jaffa, 150 Maceio, 2 Mollendo, 12 New York, 200 Piræus, 32 St. John's, N.F., 37 Sydney, 55 Valencia, 10 brls. Victoria, B.C., 50 Chemicals (otherwise undescribed) Hamburg, 7 c. £12 M. Video, 3 cks. 20 Barcelona, 2 25 Alexandria, 1 t. 35 Beyrout, 12 2 q. 21 Gr. Canary, 6 Rio de Janeiro, 2 brls. 3 kgs. 40 Alexandretta, 2 t. 68 Antwerp, 1 4 c. 42 Genoa, 1 34 Halifax, 1 34	China Clay— Genoa, 20 cks. Chloride of Lime— B. Ayres, 1 t. 4 c. £12 Citric Acid— Vigo, 1 c. £8 Coal Products— Alizarine Lisbon, 2 cks. Aurine Portland M., 3 cks. Myrbane Oil Boston, 29 cs. Tar Seville, 10 t. 11 c. Copperas— Piræus, 3 t. 12 c. £5 Copper Sulphate— Beyrout, 14 c. 3 q. £12 Venice, 9 t. 9 3 138 Philopole, 2 2 32 Rouen, 60 10 847 Vera Cruz, 1 10 24 Lisbon, 10 2 3 160 Porto Alegre, 1 16 Bordeaux, 19 19 1 320 Marseilles, 76 4 3 1,210 Syria, 10 8 Lime— Salt Pond, 3 t. 10 c. £6 Magnesium Chloride— Nantes, 4 t. 17 c. £13 Bombay, 13 9 36 Montreal, 6 8 17 Manure— Havana, 4 t. £112 Malaga, 206 2,000 Genoa, 12 c. 2 q. 20 Bordeaux, 250 5 747 Gr. Canary, 20 80 S. Jose de Guatemala, 1 t. 9 3 60 Nitric Acid— Bahia, 5 c. £11 Nickel Oxide— Havre, 2 c. 1 q. £14 Nickel Sulphate— Havre, 1 c. 3 q. £7 Ochre— Kingston, Jam., 10 cks. Oxalic Acid— Fiume, 5 t. £141 Barcelona, 14 c. 20 Paint— Calcutta, 600 kgs. 2 cks. Caldera, 2 cks. Cape Town, 13 dms. Colon, 10 5 Las Palmas, 110 Lisbon, 12 Principe, 25 Painters' Colours— Alexandria, 80 kgs. 1 ck. Algoa Bay, 4 Amsterdam, 11 4 12 dms Antwerp, 4 10 Bahia, 6 Baltimore, 4 Bombay, 300 49 cs. Boston, 3 B. Ayres, 115 100 114 brls. Ceara, 38 2 Guayaquil, 7 Iquique, 150 Manaoa, 10 10 2 Mayaguez, atcs. 1 5 Monrovia, 24 Montreal, 1 Ponce, 1 pkge. 3 Porto Alegre, 30 Santiago, 1 Santos, 2 Seville, 12 Sierra Leone, 40 Vigo, 1 Paraffin Wax— Leghorn, 80 bgs. Patras, 5 Trieste, 107 Phosphorus— Tampico, 10 cs. £84 Kobe, 46 400 Hioago, 20 258 Shanghai, 35 314 Plumbago— Para, 2 cks. Potassium Bichromate— Alexandretta, 1 t. 1 c. 1 q. £48 Potassium Chlorate— Lisbon, 9 c. £30 Malaga, 6 21 Tampico, 1 t. 56	Mexico, Calcutta, 12 Yokohama, 1 10 Odessa, 1 14 Antwerp, 5 19 Hamburg, 2 Malta, 1 Hong Kong, 3 Cape Town, 10 New York, 28 15 Hioago, 55 12 Leghorn, 1 10 Rotterdam, 3 19 Vera Cruz, 3 14 Copenhagen, 11 Danzig, 1 Shanghai, 1 10 Yokohama, 5 Potassium Oxalate— Boston, 14 t. 4 c. 1 q. 4 Salt— Accra, 10 t. Ambriz, 5 Antwerp, 387 6 c. Assinee, 5 Belize, 55 Boston, 200 Calcutta, 2,147 C. C. Castle, 6 5 E. London, 8 19 Ghent, 157 Gr. Bassam, 8 18 Kingston, Ja., 17 15 Loango, 45 3 Manaoa, 96 8 Nagasaki, 25 N. Orleans, 100 New York, 65 Portland, Me., 100 Rotterdam, 485 Sydney, 100 Trinidad, 17 17 Vancouver 40 Victoria, W.C.A., 10 14 Saltcake— Ghent, 300 t. Philadelphia, 176 4 c. Saltpetre— Rio de Janeiro, 6 c. 3 q. Syria, 1 t. 4 1 Sheep Dip— New York, 3 t. 12 c. M. Video, 6 4 1 q. Soap— Accra, 82 bxs. Algoa Bay, 2,102 Annatto Bay, 30 Antigua, 100 Antwerp, 200 Axim, 39 Bombay, 30 cs. Calcutta, 500 Callao, 1 C. C. Castle, 226 Cape Town, 2,045 Caracas, 1 Christiania, 25 Colon, 525 Durban, 250 E. London, 375 Guayaquil, 1,201 Kingston, Ja., 2,650 Leghorn, 1 Loanda, 2 Mauritius, 3,000 Monrovia, 1 New York, 830 40 Portland, M., 3 Port Natal, 550 St. John's, N.F., 50 2 St. Lucia, 360 Santiago, 1 Sierra Leone, 35 1 Valparaiso, 100 Soapstone— Bombay, 3 t. Soda Alkali— Acajutla, 20 brls. Odessa, 50 Soda Ash— Antwerp, 70 cks. 100 kg Baltimore, 26 tcs. 600 Boston, 125 brls. Jaffa, 50 Philadelphia, 90 1,350 Singapore, 20 Smyrna, 170 Syria, 50 Volo, 20 Soda Crystals— Boston, 210 brls. Kingston, Jam., 5 cks. London, Ont., 70 Malta, 50 40
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na,	100		
raiso,	50		
m Biborate—			
nd, M.,	15 brls.		
m Bicarbonate—			
rdam,	10 cks.		
ia, B.C.,	100 kgs.		
n Carbonate—			
lona,	36 cks.		
York,	36 brls.		
n Chlorate—			
urg,	20 kgs.		
dam,	30		
n Oxide—			
ork,	6 cs.		
n Silicate—			
ia,	35 brls.		
Oxide—			
rp,	194 t. 18 c.	£195	
ir—			
nbuco,	2 t. 3 q.	£13	
hagen,	30 3	7	
Alegre,	6	116	
h,	100 4	386	
	2	135	
hosphate—			
Canary	11 t	£50	
Acid—			
a,	3 c. 2 q.	£11	
utine—			
ria,	50 dms.	£22	
h—	2 brls.		
dria,	10 dms.		
hloride—			
y,	11 t. 8 c.	£170	
ux,	14	80	
HULL.			
Week ending December 16th.			
n,	2 cks.		
	8		
	102	100 kgs.	
agen,	181 cks.		
ium Sulphate—			
p,	920 bgs.		
rg,	480		
les,	586		
lam,	678		
	10 dms		
ng Powder—			
ors,	83		
h,	48		
	12		
im,	1 ck.		
Soda—			
ors	50 dms.		
	401		
	87		
	3		
als (otherwise undescribed)			
am,	1 ck.		
h,	2 pks.		
	10		
x,		20 cs.	
inople,	25		
gen,	10	40	
ia,	57 19		
urg,	20 17		
g,	5 20 pks.	178	
m,	10		
rg,	10		
se,	11 4 pks.		
ke,	15	5	
		6	
	59		
	6 272	1	
m,	80	20	
	231		
	3		
ed Oil—			
am,	26 c.		
	400		
gen,	514		
rg,	50		
t,	3,982		
rg,	611		
	202		
s,	300		
m,	5,007		
	533		

Dyestuffs (otherwise undescribed)

Christiania,	100 bgs.		
Flushing,	5 cks.		
Reval,	15		
Rotterdam,	2		
Rouen,	4		
Riga,	9		
Stettin,	107 bls.		
Linseed Oil—			
Bergen,	53 c.		
Copenhagen,	17		
Christiania,	217		
Drontheim,	94		
Hamburg,	207		
Helsingfors,	87		
Rotterdam,	93		
Logwood—			
Stettin,	138 bls.		
Mineral White—			
Amsterdam,	300 bgs.		
Flushing,	200		
Harlingen,	50		
Naphtha—			
Copenhagen,	6 dms.		
Naphthol—			
Reval,	8 cks.		
Painters' Colours—			
Amsterdam,	5 cks.		
Antwerp,	6 cs. 5	45 dms. 128 pks.	
Bremen,	18		
Copenhagen,	17	9	1 cs.
Dunkirk,	2		
Gothenburg,	1		
Genoa,	14		
Hamburg,	16		
Helsingfors,	1		
Hango,	2		
Harlingen,			5
New York,	165		
Odessa,	35		
Rotterdam,	1	1 pks. 2	
Rouen,	13		
Riga,	1	19	
Paraffin Wax—			
Leghorn,	60 bls.		
itch—			
Antwerp,	428 t.		
Copenhagen,	4 cks.		
Naples,	192		
Salt—			
Helsingfors,	15 t.		
Soap—			
Bremen,	3 cs		
Bergen,		10 cks.	
Copenhagen,	20		
Christiania,	40		
Drontheim,	30		
Gothenburg,	1		
Tallow—			
Rotterdam,	17 cks.		
Tar—			
Antwerp,	1 ck.		
Genoa,	625		
Stettin,	4 cs.		
Turpentine—			
Helsingfors,	10 cks.		
Yarnish—			
Copenhagen,	5 cs. 2 cans		
Christiania,	1	1 ck.	
Genoa,			
Hamburg,	6	1	
Naples,		1	
Rotterdam,		1	

GLASGOW.

Week ending December 21st.

Albumen—			
New York,	2 t. 18 c.	£160	
Ammonium Chloride—			
Italy,	1 t. 1 1/4 c.	£27	
Asbestos—			
Calcutta,	6 1/4 c.	£20	
Bleaching Powder—			
Calcutta,	58 t. 16 c.	£320	
Boracic Acid—			
Japan,	5 t.	£182	
Borax—			
Seville,	4 t. 10 1/4 c.	£115	
Japan,	3 19 1/4	116	
Castor Oil—			
Cape Colony,	195 gls.	£55	
Caustic Soda—			
Bombay,	10 1/2 c.	£6. 14s.	
Coal Products—			
Benzol			
Rotterdam,	25 dms.	£77	
Pitch			
Bombay,	8 t. 15 c.	£33	
Amsterdam,	233	326	

Tar

Calcutta,	11 t. 15 c.	£21	
Batavia,		85	
New York,	23 8	50	
Madras,		112	
Calcutta,		102	
Copperas—			
Bombay,	37 t. 19 1/4 c.	£62	
Dyestuffs—			
Logwood			
Oporto,		£21	
Lead Acetate—			
Bombay,	3 t. 2 1/4 c.	£47	
Linseed Oil—			
Bombay,	1,140 gls.	£121. 16s.	
Calcutta,	16 1/2 c.	£22	
Magnesium Sulphate—			
Calcutta,	5 t.	£22	
Manganese—			
Rotterdam,	10 cks.	£50	
Paint—			
Cape Colony,		£27	
Bombay,	19 t. 4 c.	316	
Amsterdam,	1 kg.	£1. 5s.	
New York,	3 1 1/4	62	
Colombo,		93	
Calcutta,		65	
Painters' Colours—			
Calcutta,	7 t.	£140	
Singapore,		26	
Paraffin Scale—			
Amsterdam,	30 cks.	£217	
Paraffin Wax—			
Cape Colony,	4 t. 13 1/4 c.	£139	
Seville,	1 1/2	30	
Italy,	52 17	1,664	
Hungary,	12 6	224	
Potash Salts—			
Cape Colony,	26 t. 10 c.	£3,064	
Potassium Bichromate—			
Rotterdam,	2 cks.	£25	
Amsterdam,	12	192	
Italy,	17 t. 1/4 c.	780	
Potassium Prussiate—			
New York,	9 t. 19 1/4 c.	£911	
Potassium Sulphate—			
New York,	7 t. 1/4 c.	£77	
Rosin Oil—			
Amsterdam,	15 brls.	£30	
Sheep Dip—			
B. Ayres,	3 t. 5 c.	£90	
Soap—			
Barbadoes,	1 t. 12 1/4 c.	£25	
Bombay,	2 3 1/2	30	
New York,	2 4 1/2	32	
Colombo,	1 5	24	
Soda Crystals—			
Bombay,	3 t. 9 c.	£13. 16s.	
Sodium Bichromate—			
New York,	26 t. 19 c.	£415	
Italy,	27 15 1/4	605	
Sulphuric Acid—			
Bombay,	1 t. 19 c.	£26	
Madras,	15	20	
Tallow—			
Rotterdam,	1 t. 2 c.	£46	
Amsterdam,	1 4	50	
Oporto,	1	31	
Turpentine—			
Bombay,	60 gls.	£6. 19s.	
Yarnish—			
Bombay,	2 c.	£9. 16s.	
White Lead—			
Bombay,	5 t. 6 1/4 c.	£101. 16s.	
Seville,	3 18 1/4	£55	

TYNE.

Week ending December 16th.

Alkali—			
Rotterdam,	19 t. 4 c.		
Alum—			
Seville,	3 t. 5 c.		
Ammonia Soda—			
Gothenburg,	3 t. 4 c.		
Ammonium Carbonate—			
Aalborg,	11 c.		
Antimony—			
Barcelona,	1 t. 4 c.		
Hamburg,	10		
Arsenic—			
Barcelona,	3 t. 5 c.		
Barium Carbonate—			
Rotterdam,	100 t.		
Libau,	10 9 c.		
Bleaching Powder—			
Antwerp,	102 t. 16 c.		
Lisbon,	10 3		

Odense,	10 1		
Rotterdam,	23 3		
Hamburg,	116 5		
Bergen,	2 1		
Drontheim,	10 3		
Copenhagen,	59 14		
Libau,	10		
Gothenburg,	10 5		
Calcined Magnesia—			
Genoa,	2 t. 3 c.		
Caustic Soda—			
Antwerp,	1 t. 3 c.		
Barcelona,	23 14		
Hamburg,	2 18		
Copenhagen,	5 16		
Genoa,	41 5		
Seville,	2 1		
Farina—			
Bergen,	4 t.		
Litharge—			
Hamburg,	1 t. 1 c.		
Copenhagen,	11		
Malmo,	1 7		
Gothenburg,	1 1		
Magnesia—			
Barcelona,	10 t. 10 c.		
Hamburg,	2		
Libau,	1 9		
Paint—			
Hamburg,	6 c.		
Paraffin Wax—			
Barcelona,	1 t. 17 c.		
Potassium Chlorate—			
Genoa,	15 c.		
Rosin Oil—			
Rotterdam,	2 t. 14 c.		
Soap—			
Rotterdam,	10 t. 4 c.		
Soda—			
Svendsborg,	9 t. 2 c.		
Odense,	14 9		
Christiania,	5		
Aalborg,	10 3		
Rotterdam,	32 2		
Hamburg,	23 6		
Christiansund,	5		
Copenhagen,	8 1		
Seville,	10 4		
Soda Ash—			
Lisbon,	40 t. 2 c.		
Gothenburg,	60 5		
Sodium Bichromate—			
Genoa,	1 t. 4 c.		
Sodium Hyposulphite—			
Barcelona,	1 t. 12 c.		
Sulphur—			
Drontheim,	50 t.		
Superphosphate—			
Christiania,	25 t.		
Tallow—			
Hamburg,	18 c.		
White Lead—			
Copenhagen,	1 t.		

GOOLE.

Week ending December 13th.

Chemicals (otherwise undescribed)			
Boulogne,	5 cks.		
Hamburg,	40		
Rotterdam,	42		
Coal Products (otherwise undes.)			
Antwerp,	34 cks.		
Dunkirk,	27		
Boulogne,	78 19 pks.		
Ghent,	30 9 dms.		
Hamburg,	2		
Rotterdam,	200		
Dyestuffs (otherwise undescribed)			
Hamburg,	10 cks.		
Rotterdam,	46		
Manure—			
Hamburg,	250 bgs.		
Pitch—			
Antwerp,	401 t.		

GRIMSBY.

Week ending December 16th.

Chemicals (otherwise undescribed)			
Dieppe,	2 cs. 149 pks.		
Hamburg,	6 1 ck. 10.		
Malmo,	26 dms.		
Coal Products (otherwise undes.)			
Dieppe,	138 cks.		
Dyestuffs (otherwise undescribed)			
Dieppe,	12 cks.		

PRICES CURRENT.

WEDNESDAY, DECEMBER 27

PREPARED BY MESSRS. HIGGINBOTTOM AND CO., 116, PORTLAND STREET, MANCHESTER.

The values stated are F.O.R. at maker's works, or at usual ports of shipment in U.K. The price in different localities may vary.

Acids:—

		£	s.	d.
Acetic, 25 % and 40 %	per cwt.	7/6	&	11/3
Glacial	"	50/-		
Arsenic S.G., 2000°	"	0	14	6
Fluoric	per lb.	0	0	3 3/4
Muriatic (Tower Salts), 30° Tw.	per bottle	0	0	10
(Cylinder), 30° Tw.	"	0	3	0
Nitric 80° Tw.	per lb.	0	0	1 3/4
Nitrous	"	0	0	1 3/4
Oxalic	nett	0	0	3 3/4
Phosphoric, 1750°	"	0	1	2 1/2
Picric	"	0	1	0
Sulphuric (fuming 50 %)	per ton	15	10	0
(monohydrate)	"	5	10	0
(Pyrites, 168°)	"	3	0	0
(free from arsenic, 145°)	"	1	5	0
Sulphurous (solution) S.G. 1025	"	1	6	0
Tannic (pure)	per lb.	0	1	2
Tartaric	"	0	0	11 1/2
Arsenic, white powdered	nett per ton	13	10	0
Alum (loose lump)	"	5	2	6
Alumina Sulphate (pure)	"	5	0	0
Aluminoferrous	"	2	10	0
Aluminium	per lb.	0	3	0
Ammonia, Anhydrous	"	0	1	2
" 880°=28°	per lb.	0	0	3
" =24°	"	0	0	2 1/4
" Carbonate	nett	0	0	3 1/2
" Muriate	per ton	25	10	0
" (sal-ammoniac) 1st & 2nd	per cwt.	37/-	&	35/-
" Nitrate	per ton	44	0	0
" Phosphate	per lb.	0	0	10 1/2
" Sulphate (grey) London	per ton	13	10	0
(grey) Hull	"	13	10	0
Aniline Oil (pure)	per lb.	0	0	6 1/4
Aniline Salt	"	0	0	5 3/4
Antimony	per ton	45	10	0
" (tartar emetic)	per lb.	0	1	0
" (golden sulphide)	"	0	0	10
Barium Chloride	per ton	7	10	0
" Carbonate (native)	"	3	10	0
" Sulphate (native levigated)	"	45/-	to	75/-
Bleaching Powder, 35 %	nett	8	0	0
" Liquor, 7 %	"	3	10	0
Bisulphide of Carbon	"	11	15	0
Chromium Acetate (crystal)	per lb.	0	0	6
Calcium Chloride	per ton	2	5	0
China Clay (at Runcorn) in bulk	"	17/6	to	35/-

Coal Tar Products and Dyes:—

Alizarine (artificial) 20 %	net per lb.	0	0	8
Magenta	"	0	3	9
Anthracene, 30 % A, f.o.b. London	per unit per cwt.	0	1	1
Benzol, 90 % nominal	per gallon	0	1	5 1/2
" 50/90	"	0	1	6 1/2
Carbolic Acid (crystallised 40°)	per lb.	0	0	6 1/4
(crude 60°)	per gallon	0	1	7
Creosote (ordinary)	"	0	0	2 1/2
(filtered for Lucigen light)	"	0	0	3
Crude Naphtha 30 % @ 120° C.	"	0	0	8 1/2
Grease Oils, 22° Tw.	per ton	2	5	0
Pitch, f.o.b. Liverpool or Garston	"	1	9	0
Solvent Naphtha, 90 % at 160°	per gallon	0	1	4
" Lucigen" and "Wells" Oils	"	0	0	2 1/2
Copper	per ton	43	0	0
" Sulphate	"	15	15	0
" Oxide (copper scales)	"	40	0	0
Glycerine (crude)	"	13	0	0
(distilled S.G. 1250°)	"	43	0	0
Iodine	nett, per oz.	0	0	9
Iron Sulphate (copperas)	per ton	1	10	0
" Sulphide (antimony slag)	"	2	0	0
Lead (sheet) for cash	"	10	15	0
" Litharge Flake (ex ship)	"	13	0	0
" Acetate (white)	"	26	0	0
" brown	"	17	10	0
" Carbonate (white lead) pure	"	20	0	0
" Nitrate	"	20	0	0

Lime, Acetate (brown)	per ton	1		
(grey)	"	1		
Magnesium (ribbon and wire)	per oz.	1		
" Chloride (ex ship)	per ton	1		
" Carbonate	per cwt.	1		
" Hydrate	per ton	1		
" Sulphate (Epsom Salts)	per ton	1		
Manganese, Sulphate	per ton	17		
" Borate	per cwt.	1		
" Ore, 70 %	per ton	4		
Methylated Spirit, 61° O.P.	per gallon	0		
Naphtha (Wood), Solvent	"	0		
" Miscible, 60° O.P.	"	0		
Oils:—				
Cotton-seed	per ton	22		
Linseed	"	21		
Petroleum, Russian	per gallon	0		
" American	"	0		
Phosphorus (yellow)	per lb.	0		
(red)	"	0		
Potassium (metal)	per oz.	0		
" Bichromate	nett per lb.	0		
" Carbonate, 90% (ex ship)	per ton	16		
" Chlorate	per lb.	0		
" Cyanide, 98%	"	0		
" Hydrate (Caustic Potash) 80/85 %	per ton	21		
" (Caustic Potash) 75/80 %	"	20		
" (Caustic Potash) 70/75 %	"	20		
" Nitrate (refined)	per cwt.	1		
" Permanganate	per cwt.	3		
" Prussiate Yellow	per lb.	0		
" Sulphate, 90 % (ex ship)	per ton	9		
" Muriate, 80 % (do.)	"	8		
Silver (metal)	per oz.	0		
" Nitrate	"	0		
Sodium (metal)	per lb.	0		
" Carb. (refined Soda-ash) 48 %	nett per ton	5		
" (Caustic Soda-ash) 48 %	"	4		
" (Carb. Soda-ash) 48 %	"	4		
" (Carb. Soda-ash) 58 %	"	4		
" (Soda Crystals)	"	3		
" Acetate (ex-ship)	"	16		
" Arseniate, 45 %	"	11		
" Chlorate	per lb.	0		
" Borate (Borax)	net, per ton	28		
" Bichromate	per lb.	0		
" Hydrate (77 % Caustic Soda) (f.o.b.) net pr. ton	lots	11		
" (74 % Caustic Soda)	"	10		
" (70 % Caustic Soda)	"	9		
" (60 % Caustic Soda)	"	8		
" (60 % Caustic Soda, cream) (f.o.b.)	"	8		
" Bicarbonate	"	6		
" Hyposulphite	"	6		
" Manganate, 30%	"	16		
" Nitrate (95 %) ex-ship Liverpool	per cwt.	0		
" Nitrite, 98 %	per ton	29		
" Phosphate	"	15		
" Silicate (glass)	per ton	5		
" (liquid, 100° Tw.)	"	4		
" Stannate, 40 %	per cwt.	3		
" Sulphate (Salt-cake)	per ton	1		
" (Glauber's Salts)	"	1		
" Sulphide	"	8		
" Sulphite	"	5		
Strontium Hydrate, 100%	"	8		
Sulphocyanide Ammonium, 95 %	per lb.	0		
" Barium, 95 %	"	0		
" Potassium	"	0		
Sulphur (Flowers)	per ton	8		
" (Roll Brimstone)	"	6		
" Brimstone: Best Quality	"	4		
Superphosphate of Lime (26%)	"	2		
Tallow	"	28		
Tin (English Ingots)	"	79		
Tin Crystals	per lb.	0		
Zinc (Spelter)	per ton	16		
" Chloride (solution, 96° Tw.)	"	5		

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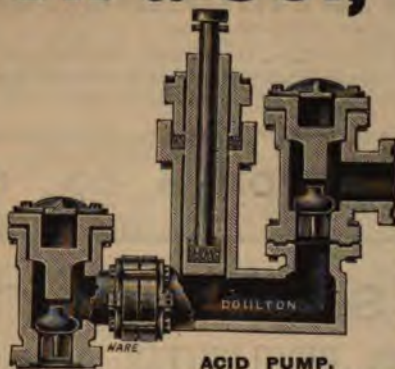
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Full particulars and Forms of Tender may be had on application to Mr. Thomas Holgate, F.C.S., Gas Works, Halifax.

Sealed tenders endorsed "Sulphuric Acid," "Oxide of Iron," or "Spent Oxide of Iron," as the case may be, to be delivered to the undersigned, not later than the 6th July, 1893.

The Corporation do not bind themselves to accept the lowest, highest, or any tender.

KEIGHLEY WALTON,
Town Clerk.

Miscellaneous.

Replies to Advertisements addressed to the "Chemical Trade Journal" Office are forwarded to Advertisers, post free, on the day of their receipt.

At an upset price of £4,000. The WORCESTER CHEMICAL WORKS, Diglis, Worcester, together with the valuable fixed Plant and Machinery, in One Lot, as a going concern.

MESSRS. FULLER, HORSEY, SONS, AND CASSELL are instructed to SELL BY AUCTION, on the premises as above, on Wednesday, July 26th, at two for three o'clock precisely, unless previously disposed of privately, the above leasehold property situate on the Worcester and Birmingham Canal and the River Severn. The Works have an area of about one acre upon which are erected a Brick-built Factory, Manure Store, Three Lead Acid Chambers, Denitrating and Glover Towers, Grinding Mill, Engine and Boiler Houses, Chimney Shaft, Offices, etc. The fixed plant and machinery will be included in the purchase, and the loose tools and utensils be taken at a valuation—held for unexpired terms of about 63 years, at ground rents amounting to £92. 8s. per annum. May be viewed by orders and particulars had of Messrs. Southall and Co., solicitors, Worcester; Messrs. John Stallard and Son, solicitors, Worcester; Messrs. Stallard and Turner, solicitors, 44, Bedford Row, London, W.C.; Henry Webb, Esq., surveyor, Angel Street, Worcester; and of the auctioneers, 11, Billiter Square, London, E.C.

GOOD WORKS TO BE LET, suitable for Oil, Grease, or Chemical Manufacture, situated within easy distance of Longsight, Ashburys, and Belle Vue Stations: large steam boiler, stills, hydraulic press, pumps, store tanks, weighing machines; all in good order; ample space for extension; would be disposed of on favourable terms.—Address HJ9, *Chemical Trade Journal* Office, Manchester.

PRACTICAL CHEMIST (Ph.D.), who has had special experience in the estimation of impurities in Coal Gas and Illuminating Power, also in all Analyses in connection with Gas Works, desires appointment; highest references.—Address "Gas," *Chemical Trade Journal* office, Manchester.

CHEMIST, Doctor of Philosophy, former assistant to eminent German Professor of Chemistry, having held several appointments in the Chemical industry, and having had considerable experience in laboratory work as well as technical, desires situation.—Address W. 62, *Chemical Trade Journal* Office.

ADVERTISER, speaking Spanish and Portuguese fluently, is open to an engagement as Manager of Copper Cementation or Extraction Works, home or abroad; excellent testimonials; last appointment held for 10 years. Also practically acquainted with management of Claudet's silver process. Is thoroughly qualified as chemist and assayer.—Address B 54, *Chemical Trade Journal* office, Manchester.

CHEMIST (Ph.D.) with 10 years varied experience in Analysis of Technical and Commercial Products and Research, desires situation either at Works or Analytical Laboratory; excellent references.—Address P 90, *Chemical Trade Journal* office, Manchester.

SULPHATE of Lime, calcined, For Sale, cheap, in large and regular quantities.—Address Sadler & Co., Limited, Middlesbrough.

SOAP PLANT (modern) For Sale. Practically equal to new. Three Coppers (one 10-ton, one 5-ton, one about 3-ton), frames, etc.—Apply to H 64, *Chemical Trade Journal* Office, Manchester.

VATS and Casks of all sizes, new and second hand; a large quantity in stock. Prices given for repairs and alterations.—Campbell & Swainston Ltd., Argyll Wharf, Limehouse, London, E.

SECOND-HAND Beer Hogsheads and Barrels for sale cheap. Campbell & Swainston Ltd., Argyll Wharf, Limehouse, London, E.

GOOD Second-hand Rum Puncheons for sale, cheap. Apply to Campbell & Swainston Argyll Wharf, Thomas-street, Limehouse, London, E.

Miscellaneous.—Cont.

TO BE SOLD, the LANCASHIRE MANURE COMPANY'S WORKS at Widnes with Machinery and 24,420 square yards of Freehold Land.—Address J. Hosking, 16, Fenwick Street, Liverpool.

AMMONIA.

FOR SALE, the Works fitted with modern machinery for the manufacture of Liquid Ammonia. Abundant supply of good Water. Close to station. Inquiries to D. C. Williamson, auctioneer, Nelson Square, Bolton.

QUOTATIONS WANTED for Fluid Magnesia Plants, of all sizes, with capacity and to state clearly how strong the plants are capable of making Fluid Magnesia—i.e. how many grains MgO per fluid ounce it is possible to obtain. "Magnesia," *Chemical Trade Journal* Office.

QUOTATIONS given for Fluid Magnesia of highest possible strengths for manufacturing or pharmaceutical purposes; also for any quantity of Carbonate, Calcined or Hydrate of Magnesia. Buyers' samples matched.—The Washington Chemical Co., Washington Station, Co. Durham.

OLIVOLINE and ATEROLINE.

Two perfect non-gumming Lubricating Oils. 20 years in use. Made to suit every class of machinery ashore or afloat. Gentlemen who can influence business are offered liberal terms. Sole Makers, DUNCAN, WATSON & Co., Oil Manufacturers and Mill Furnishers, Dashwood House, New Broad-street, London, E.C.

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Runner Mill, several Stone and Ore Breakers, two Roller Mills, and one Mixing Machine, good as new. S. Mason & Co., Stone Breaking and Grinding Machine Makers, Brandon Street, Leicester.

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Wooden Vessels of every description. Manufacturing Chemists who may be requiring anything in this direction would do well to write us for a quotation, as having had an extensive experience with regard to this class of work we are of course in a position to compete most favourably with anyone in the trade.—Henry Roberts & Co., Coopers and Vat Makers, Bancroft Road, Mile End, London, E.

SQUARES, Rounds, Vats, Tubs

&c. We have on hand an immense and most varied stock of the above, recently taken out of Breweries, Distilleries, &c., and we would respectfully invite Manufacturing Chemists who may be requiring anything in this direction to communicate with us.—Henry Roberts & Co., Coopers and Vat Makers, Bancroft Road, Mile End, London, E.

AMMONIA, all qualities and

strengths. Enquiries solicited.

BROTHERTON & Co., Leeds and Wakefield.

Advertisements which arrive too late for insertion on this page will be found on first page of Matter (opposite Leading Article).

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HARPER'S LIST

OF ACCESSORIES for the TRANSMISSION of POWER, viz.:—BELT PULLEYS, ROPE PULLEYS, GEAR WHEELS, SHAFTING, COUPLINGS, PEDESTALS, FIXINGS; appears on Pages 14 and 15 of the first and third *Chemical Trade Journal* of each month.

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Mr. FRANCIS SUTTON, F.I.C., F.C.S., has a Special Laboratory for the Manufacture of Solutions for every variety of Analysis by Volumetric Methods, and on any System Measurement; also Indicators, Test Papers, and all requisites.

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See Full Page Advertisement, Page 13,
Each Month.

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WALKER'S PATENT
AIR COMPRESSING ENGINES.
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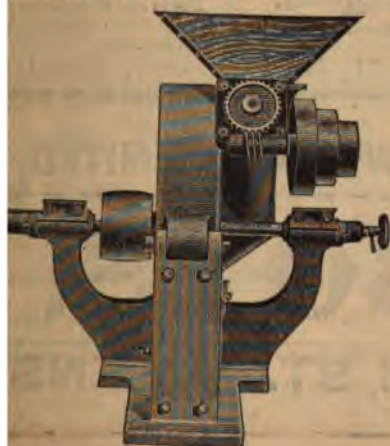
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ING OXIDE, PURE ACETIC, TANNIC, & SALICYLIC
ACIDS, NITRATE & CHLORIDE OF BARIUM, &c.

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Will grind and dress any material,
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Grinding and Dressing Machinery
a speciality.
Made Self and Hand Feed.
Wrought Iron Pulleys, Shafting,
Hangers, and Pedestals.

W. H. PEACOCK,
Chemical Engineer & Millwright,
BRADFORD, MANCHESTER.

Tenders.

LEEK IMPROVEMENT ACT, 1853.

TO TAR DISTILLERS AND OTHERS.

TENDERS are invited for the purchase of the SURPLUS GAS TAR produced at the Leek Gas Works, for One, Two, or Three Years from the 1st July, 1893, at per ton of 2240 lbs. at such works. Endorsed tenders, addressed to the Chairman of the Gas Committee, to be delivered at the Town Hall, Leek, by four o'clock in the afternoon of Monday, 31st of July instant.

Forms of Tender and further particulars may be obtained from the undersigned. The highest or any tender will not necessarily be accepted.

By order of the Commissioners,
C. HENSHAW, Clerk.

Town Hall, Leek,
20th July, 1893.

TAR AND AMMONIA LIQUOR CONTRACT.

THE Gas Committee of the Penrith Local Board of Health are prepared to receive TENDERS for the purchase of the SURPLUS TAR produced at their works during year ending June 30th, 1894. Also for the AMMONIA LIQUOR produced from this date up to 30th December, 1893. Tenders to be delivered by Monday, July 25th. Further particulars may be obtained from the undersigned.

July 15th, 1893.

E. SHAUL.

Miscellaneous.

On WEDNESDAY next, at an upset price of £4,000. The WORCESTER CHEMICAL WORKS, Diglis, Worcester, together with the valuable fixed Plant and Machinery, in One Lot, as a going concern.

MESSRS. FULLER, HORSEY, SONS, AND CASSELL are instructed to SELL BY AUCTION, on the premises as above, on Wednesday next, July 25th, at two for three o'clock precisely, unless previously disposed of privately, the above LEASEHOLD PROPERTY situate on the Worcester and Birmingham Canal and the River Severn. The Works have an area of about one acre upon which are erected a Brick-built Factory, Manure Store, Three Lead Acid Chambers, Denitrating and Glover Towers, Grinding Mill, Engine and Boiler Houses, Chimney Shaft, Offices, etc. The fixed plant and machinery will be included in the purchase, and the loose tools and utensils be taken at a valuation—held for unexpired terms of about 63 years, at ground rents amounting to £97. 2s. per annum. May be viewed by orders and particulars had of Messrs. Southall and Co., solicitors, Worcester; Messrs. John Stallard and Son, solicitors, Worcester; Messrs. Stallard and Turner, solicitors, 44 Bedford Row, London, W.C.; Henry Webb, Esq., surveyor, Angel Street, Worcester; and of the auctioneers, 11, Billiter Square, London, E.C.

CHEMICAL WORKS.—Partner Wanted, chemist preferred, to take Position on Works. Cash required, £2,000. to £3,000. Works have cost £12,000. Would give 15 per cent. of profits and all works as security. Good profits.—Address Davis Bros., 32, Blackfriars Street, Manchester.

TO TAR DISTILLERS.—Situation, with above, required by advertiser as either WORKS MANAGER or CHEMIST; highest references; long experience; correspondence invited.—Address "Benzole," Chemical Trade Journal Office, Manchester.

LEADING BRICKSETTER WANTED.—State age and experience (in strict confidence) to Box A 72, Chemical Trade Journal Office, Manchester.

A YOUNG CHEMIST (22), about leaving Owens College, wants employment in Metallurgical or Chemical Works or General Analytical Laboratory; excellent testimonials; good analyst; quick and cheerful worker.—Address E 72, Chemical Trade Journal Office, Manchester.

ALKALINE MAGNESIUM SILICATE.—Wanted, Maker of same as per this journal of July 4th, 1891.—Address "Silicate," Chemical Trade Journal Office, Manchester.

WANTED, a small experimental VACUUM PAN and CONDENSER.—Send particulars of size and price to W. J. Fraser and Co., Chemical Engineers, Commercial Road, E., London, E.

PRACTICAL CHEMIST (Ph.D., Heidelberg), with experience in Tar Colours and Mineral Oil Distillery, desires Situation.—Address G 72, Chemical Trade Journal Office, Manchester.

SALT-CAKE and Weldon Foreman Wanted, with a knowledge of Vitriol making. Wages, 35s. per week. State age and experience (in strict confidence) to Box C 71, Chemical Trade Journal Office, Manchester.

Miscellaneous.—Cont.

WANTED, a Practical Man with some capital, thoroughly experienced in the Manufacture of Acetate of Lead, to join advertisers in, and to take management of, an old established business.—Apply, Broadmoor Chemical Co., Cinderford, Glos.

CAUSTIC FOREMAN WANTED. Wages, 35s. per week. State age and experience (in strict confidence) to Box D 71, *Chemical Trade Journal* Office, Manchester.

SULPHATE of Lime, calcined, For Sale, cheap, in large and regular quantities.—Address Sadler & Co., Limited, Middlesbrough.

FILTER AND HYDRAULIC PRESSES For Sale, large sizes.—Apply "Presses," *Chemical Trade Journal* Office, Manchester.

AMMONIA. **FOR SALE**, the Works fitted with modern machinery for the manufacture of Liquid Ammonia. Abundant supply of good Water. Close to station. Inquiries to D. C. Williamson, auctioneer, Nelson Square, Bolton.

QUOTATIONS WANTED for Fluid Magnesia Plants, of all sizes, with capacity and to state clearly how strong the plants are capable of making Fluid Magnesia—i.e. how many grains MgO per fluid ounce it is possible to obtain. "Magnesia," *Chemical Trade Journal* Office.

QUOTATIONS given for Fluid Magnesia of highest possible strengths for manufacturing or pharmaceutical purposes; also for any quantity of Carbonate, Calcined or Hydrate of Magnesia Buyers' samples matched.—The Washington Chemical Co., Ltd., Washington Station, Co. Durham.

VATS, Squares, Rounds, and Wooden Vessels of every description. Manufacturing Chemists who may be requiring anything in this direction would do well to write us for a quotation, as having had an extensive experience with regard to this class of work we are of course in a position to compete most favourably with anyone in the trade.—Henry Roberts & Co., Coopers and Vat Makers, Bancroft Road, Mile End, London, E.

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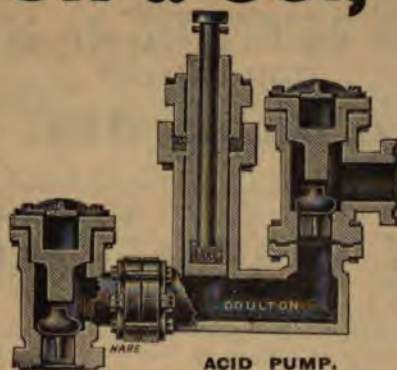
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AND SULPHIDE OF BARIUM.**

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FAIRBURN & HALL, Chief Office } 63, Royal Exchange, MANCHESTER.

Tenders.

COUNTY BOROUGH OF WIGAN.

TO TAR DISTILLERS AND OTHERS.

THE Gas Committee of the Wigan
Corporation invite TENDERS for the SURPLUS
TAR produced at their Gas Works, over a period of One,
Two, or Three years, commencing on the 1st of September,
1893.

Particulars and form of tender may be obtained on
application to the undersigned.

The highest tender not necessarily accepted.

Tenders sealed and endorsed "TAR" to be delivered to
A. SMITH, Esq., Town Clerk, on or before August 14th
next ensuing.

JOS. TIMMINS,
Engineer.

Boro' Gas Works, Wigan,
July 26th, 1893.

MANCHESTER CORPORATION GAS WORKS.

AMMONIACAL LIQUOR.

THE Gas Committee of the Cor-
poration of Manchester are prepared to receive
TENDERS for the PURCHASE and REMOVAL of
the AMMONIACAL LIQUOR to be produced at the
Gaythorn, Rochdale-road, and Bradford-road Gasworks
during a period of one or more years, commencing at noon
on the 30th day of June, 1894.

The committee do not bind themselves to accept the
lowest or any tender.

Sealed tenders, addressed to the Chairman of the Gas
Committee and endorsed "Tender for Ammoniacal
Liquor" must be delivered at the offices of the Gas Depart-
ment, Town Hall, on or before Monday, the 4th of
September, 1893.

Forms of tender and further particulars may be obtained
on application, in writing only, to Mr. CHARLES
NICKSON, Superintendent of the Department.

A deposit of one guinea (which will be returned on
receipt of the tender) must accompany each application for
a tender form.

By order of the Gas Committee,
WM. HENRY TALEBOT,
Town Clerk.

Town Hall, Manchester,
21st July, 1893.

SURPLUS TAR.

THE Gas Committee of the Ilkeston
Corporation invite TENDERS for SURPLUS
TAR.

Tenders addressed to the Chairman of the Gas Com-
mittee, to be sent in by August 3rd, on forms of tender to
be had of

F. C. HUMPHRYS,
Engineer and Manager.

Gas Works,
July 21st, 1893.

TENDERS FOR TAR.

THE Directors of the Exeter Gas-
light and Coke Company invite TENDERS for
their SURPLUS TAR for One Year, from the 14th day of
October next.

Delivery on Company's Works, filled into Purchaser's
Tanks or in Barges alongside Works.

Payment, cash monthly.
Sealed tenders, endorsed "Tender for Tar," will be
received by the undersigned on or before Thursday, the
31st of August next; but the Directors do not bind them-
selves to accept the highest or any tender.

By order,
W. A. PADFIELD,
Secretary.

Miscellaneous.

Replies to Advertisements addressed to the
"Chemical Trade Journal" Office are forwarded to
Advertisers, post free, on the day of their receipt.

MANCHESTER SHIP CANAL.

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MERE PORT, Cheshire.—Suitable for almost
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boiler power, and an unlimited supply of pure fresh water.

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shire Union Canal and Railway Co.'s large Warehouse and
Docks.

For further particulars apply in the first instance to
"Nialma," Chemical Trade Journal Office, Manchester.

A PRACTICAL CHEMIST, Fellow
of the Institute of Chemistry, wants Situation.
Practical Colour and Paint Maker, Acids, Artificial
Manures, etc.; has had management of a works for nearly
four years; married; age 32.—Address O 76, Chemical
Trade Journal Office, Manchester.

Miscellaneous.—Cont.

YOUNG CHEMIST, B.Sc., desires Situation in Laboratory (works preferred); some experience, more especially in pigments and making of lakes; good references.—Address V 76, *Chemical Trade Journal* Office, Manchester.

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SULPHATE of Lime, calcined, For Sale, cheap, in large and regular quantities.—Address Sadler & Co., Limited, Middlesbrough.

FILTER AND HYDRAULIC PRESSES For Sale, large sizes.—Apply "Presses," *Chemical Trade Journal* Office, Manchester.

AMMONIA. **FOR SALE**, the Works fitted with modern machinery for the manufacture of Liquid Ammonia. Abundant supply of good Water. Close to station. Inquiries to D. C. Williamson, auctioneer, Nelson Square, Bolton.

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SOAP PLANT (modern) For Sale. Practically equal to new. Three Coppers (one 10-ton, one 5-ton, one about 3-ton), frames, etc.—Apply to H 64, *Chemical Trade Journal* Office, Manchester.

OLIVOLINE and ATEROLINE. Two perfect non-gumming Lubricating Oils, 20 years in use. Made to suit every class of machinery ashore or afloat. Gentlemen who can influence business are offered liberal terms. Sole Makers, DUNCAN, WATSON & Co., Oil Manufacturers and Mill Furnishers, Dashwood House, New Broad-street, London, E.C.

QUOTATIONS WANTED for Fluid Magnesia Plants, of all sizes, with capacity and to state clearly how strong the plants are capable of making Fluid Magnesia—i.e. how many grains MgO per fluid ounce it is possible to obtain. "Magnesia," *Chemical Trade Journal* Office.

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PURE SULPHUROUS ACID, SULPHITES AND BISULPHITES OF LIME, SODA, FOR EXPORT.

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Mr. FRANCIS SUTTON, F.I.C., F.C.S., has a Special Laboratory for the Manufacture of Solutions for every variety of Analysis by Volumetric Methods, and on any System of Measurement; also Indicators, Test Papers, and all requisites.

Special Prices quoted to Large Consumers. Price List on application to

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IRON and STEEL (butt or lap welded), and FITTINGS for Gas, Water, Steam, Liquid Ammonia, and Hydraulic Work, galvanized white enamelled inside, or coated by Dr. Angus Smith's Composition. In stock to 3in. diameter. **COILS** for heating, super-heating, distilling and refrigerating purposes, to 500 feet long without joints.

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Globe Tube Works, Wednesbury, and 14, Great St. Thomas Apostle, Cannon-st., London, E.C.

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HARPER'S LIST

OF ACCESSORIES for the TRANSMISSION of POWER, viz.:—BELT PULLEYS, ROPE PULLEYS, GEAR WHEELS, SHAFTING, COUPLINGS, PEDESTALS, FIXINGS; appears on Pages 14 and 15 of the first and third *Chemical Trade Journal* of each month.

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Samples and quotations free on application. Correspondence invited

OWEN EDWARDS, Secretary,

63, Cross Lane, NEWTON-LE-WILLOWS.

Tenders.

LEIGH LOCAL BOARD.

THE Gas Committee of the Leigh Local Board invite TENDERS for the purchase of the SURPLUS TAR produced at their Gas Works for a period of One Year from the 1st September next.

All particulars with form of tender may be had from the undersigned.

Sealed tenders endorsed "TAR" and addressed to J. THORP, Esq., Chairman, to be delivered at the Town Hall, Leigh, on or before Monday, the 14th of August next.

The highest or any tender not necessarily accepted.

ALFRED T. FLETCHER,

Engineer and Manager.

Gas Works, Leigh, Lancashire,
July 29th, 1893.

BOROUGH OF HEYWOOD.

THE Gas Committee invite Tenders for the SUPPLY of about 100 tons of SULPHURIC ACID suitable for making Sulphate of Ammonia.

Specification and form of tender may be obtained on application to Mr. WHATMOUGH, Gas Manager.

Sealed tenders endorsed "ACID" to be delivered to me, not later than Tuesday, August 15th, 1893.

By order,

A. B. PILLING,

Town Clerk.

Municipal Buildings, Heywood,
August 1st, 1893.

COUNTY BOROUGH OF WIGAN.

TO TAR DISTILLERS AND OTHERS.

THE Gas Committee of the Wigan Corporation invite TENDERS for the SURPLUS TAR produced at their Gas Works, over a period of One, Two, or Three years, commencing on the 1st of September, 1893.

Particulars and form of tender may be obtained on application to the undersigned.

The highest tender not necessarily accepted.

Tenders sealed and endorsed "TAR" to be delivered to A. SMITH, Esq., Town Clerk, on or before August 14th next ensuing.

JOS. TIMMINS,

Engineer.

Boro' Gas Works, Wigan,
July 26th, 1893.

TENDERS FOR TAR.

THE Directors of the Exeter Gas-light and Coke Company invite TENDERS for their SURPLUS TAR for One Year, from the 14th day of October next.

Delivery on Company's Works, filled into Purchaser's Tanks or in Barges alongside Works.

Payment, cash monthly.

Sealed tenders, endorsed "Tender for Tar," will be received by the undersigned on or before Thursday, the 31st of August next; but the Directors do not bind themselves to accept the highest or any tender.

By order,

W. A. PADFIELD,

Secretary.

Miscellaneous.

Replies to Advertisements addressed to the "Chemical Trade Journal" Office are forwarded to Advertisers, post free, on the day of their receipt.

SITUATION Wanted, as ASSISTANT

Wanted, as an Analytical Chemist, or as an Assistant in an Agricultural College. Applicant has a good knowledge of Mathematics, and has passed Examinations in Chemistry, Theoretical and Practical; low salary.—Fred Gilbert, Billinghay, Lincoln.

CHEMICAL PLUMBER.—Young

Man wants a situation; good references.—Apply J 76, Chemical Trade Journal Office, Manchester

CHEMICAL WORKS.—Partner

Wanted, chemist preferred, to take Position on Works. Cash required, £2,000. to £3,000. Works have cost £12,000. Would guarantee 15 per cent. on the amount advanced and all works as security. Good profits.—Address Davis Bros., 32, Blackfriars Street, Manchester.

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Miscellaneous.—Cont.

A GENTLEMAN, Ph.D., with considerable practical experience in Organic Chemistry, also with thorough practice in Analytical Work, desires SITUATION.—Address *Chemical Trade Journal Office, Manchester*.

YOUNG CHEMIST, B.Sc., Honours, desires Situation in Laboratory (works preferred); some experience, especially of pigments and lakes; few specialities; good references.—Address V 76, *Chemical Trade Journal Office, Manchester*.

TO TAR DISTILLERS, or Gas Companies working their Tar or Liquor.—Advertiser is open for a Situation as FOREMAN, or to take charge of Stills; 15 years practical experience, thoroughly understanding both Tar and Sulphate of Ammonia; good reference.—Address A 78, *Chemical Trade Journal Office, Manchester*.

CHEMIST OR WORKS MANAGER.—Engagement wanted by competent chemist (35); practical experience in Alkali, Ammonia-Soda, Bleach, Copper and other works; also with public analyst; excellent references and testimonials.—H., 39, Hawarden Avenue, Liverpool.

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IRON and STEEL (butt or lap welded), and FITTINGS for Gas, Water, Steam, Liquid Ammonia, and Hydraulic Work, galvanized white enamelled inside, or coated by Dr. Angus Smith's Composition. In stock to 8 in. diameter.

COILS for heating, super-heating, distilling and refrigerating purposes, to 500 feet long without joints

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Globe Tube Works, Wednesbury, and 14, Great St. Thomas Apostle, Cannon-st., London, E.C.

BRYAN CORCORAN MILLSTONE BUILDING

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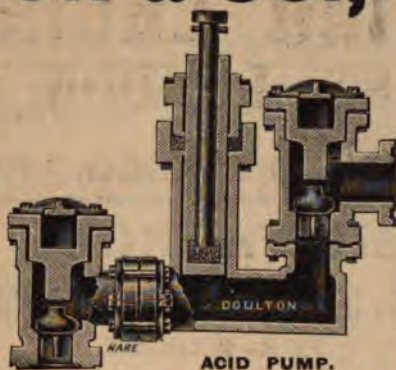
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MANCHESTER CORPORATION GAS WORKS.

AMMONIACAL LIQUOR.

THE Gas Committee of the Corporation of Manchester are prepared to receive TENDERS for the PURCHASE and REMOVAL of the AMMONIACAL LIQUOR to be produced at the Gaythorn, Rochdale-road, and Bradford-road Gasworks during a period of one or more years, commencing at noon on the 30th day of June, 1894.

The committee do not bind themselves to accept the lowest or any tender.

Sealed tenders, addressed to the Chairman of the Gas Committee, and endorsed "Tender for Ammoniacal Liquor" must be delivered at the offices of the Gas Department, Town Hall, on or before Monday, the 4th of September, 1894.

Forms of tender and further particulars may be obtained on application, in writing only, to Mr. CHARLES NICKSON, Superintendent of the Department.

A deposit of one guinea (which will be returned on receipt of the tender) must accompany each application for a tender form.

By order of the Gas Committee,

WM. HENRY TALBOT,

Town Clerk.

Town Hall, Manchester,
21st July, 1893.

LEIGH LOCAL BOARD.

THE Gas Committee of the Leigh Local Board invite TENDERS for the purchase of the SURPLUS TAR produced at their Gas Works for a period of One Year from the 1st September next.

All particulars with form of tender may be had from the undersigned.

Sealed tenders endorsed "TAR" and addressed to J. THORP, Esq., Chairman, to be delivered at the Town Hall, Leigh, on or before Monday, the 14th of August next.

The highest or any tender not necessarily accepted.

ALFRED T. FLETCHER,

Engineer and Manager.

Gas Works, Leigh, Lancashire,

July 29th 1893.

BOROUGH OF HEYWOOD.

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Municipal Buildings, Heywood,
August 1st, 1893.

Miscellaneous.

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TO SELL, as a going concern, the old-established BUSINESS of Messrs. Saunders and Saunders, at Cleckheaton, now in full work, with a capacity of 80 tons per week Salt Cake, 15 tons Muriate of Ammonia, 30 tons Glauber Salts, Nitrate of Iron, Ammonia, and other dyers' solutions.

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SITUATION Wanted, as ASSISTANT to an Analytical Chemist, or as an Assistant in an Agricultural College. Applicant has a good knowledge of Mathematics, and has passed Examinations in Chemistry, Theoretical and Practical; low salary.—Fred Gilbert, Billingham, Lincoln.

CHEMICAL PLUMBER.—Young Man wants a situation; good references.—Apply J 76, Chemical Trade Journal Office, Manchester.

CHEMICAL WORKS.—Partner Wanted, chemist preferred, to take Position on Works. Cash required, £2,000. to £3,000. Works have cost £12,000. Would guarantee 15 per cent. on the amount advanced and all works as security. Good profits.—Address Davis Bros., 32, Blackfriars Street, Manchester.

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Miscellaneous.—Cont.

ADVERTISER, many years employed in chemical works, is open for engagement at home or abroad as foreman, or to take charge of erection of works and plant; 14 years in Saltpetre Refinery and Acid Works.—W., 48, Lausanne-road, London, S.E.

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METALLURGICAL Chemist and Assayer in metal extraction works (now closed) for 5 years, seeks situation with mining, metal extracting or other Co., home or abroad. Practically acquainted with Claudet's silver process, patent purple ore blockmaking, &c. Good references; willing worker. Address "Practical," *Chemical Trade Journal* Office Manchester.

WANTED, either in Chemical Works or Research Laboratory, a position as Junior Analyst; good references.—Address G 80, *Chemical Trade Journal* Office, Manchester.

A GENTLEMAN, Ph.D., with considerable practical experience in Organic Chemistry, also with thorough practice in Analytical Work, desires **SITUATION**.—Address W 78, *Chemical Trade Journal* Office, Manchester.

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IRON and STEEL (butt or lap welded), and **FITTINGS** for Gas, Water, Steam, Liquid Ammonia, and Hydraulic Work, galvanized white enamelled inside, or coated by Dr. Angus Smith's Composition. In stock to 8in. diameter.

COILS for heating, super-heating, distilling and refrigerating purposes, to 500 feet long without joints

JOHN SPENCER, 2.00
Globe Tube Works, Wednesbury, and 14, Great St. Thomas Apostle, Cannon-st., London, E.C.

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WIRE WEAVER, MACHINE MANUFACTURER, AND GENERAL MILL FURNISHER.
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Especially suitable for certain materials, Wet or Dry.

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Liverpool: Exchange Chambers
Glasgow: West Campbell-st.

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THE Directors of this Company in-
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Particulars may be obtained from the undersigned to
whom endorsed tenders must be delivered not later than
Thursday, the 31st inst.

JAMES BRADDOCK,
Manager and Secretary.

Gas Works, Radcliffe,
August 16th, 1893.

TAR AND LIQUOR.

THE Eccleshill and Bolton Gas
Company invite TENDERS for the SURPLUS
TAR and AMMONIACAL LIQUOR to be produced at
their Works, together or separately, for Twelve Months,
from 1st September next. Can be delivered in Contractor's
Tanks at the Station (G.N.R.). Coal carbonized, per
annum, about 1,800 tons.
Tenders, sealed and endorsed, must reach me not later
than Monday, the 4th September.

J. MELLOR,
Secretary.

Eccleshill, Bradford,

BOROUGH OF WIDNES.

THE Widnes Corporation invite
TENDERS for the purchase of about 700 tons
GAS TAR from their Gas Works for the Twelve Months
ending 30th September, 1894.
Forms of tender and conditions of contract may be
obtained from Mr. I. CARR, A.M.I.C.E., Gas Works,
Widnes.
Endorsed tenders to be delivered to the undersigned not
later than the 4th September prox.
The Corporation do not bind themselves to accept a
tender.

H. S. OPPENHEIM,
Town Clerk.

Town Hall, Widnes,
August 12th, 1893.

Miscellaneous.

Replies to Advertisements addressed to the
"Chemical Trade Journal" Office are forwarded to
Advertisers, post free, on the day of their receipt.

TO CHEMICAL MANUFACTURERS
AND OTHERS.

TO SELL, as a going concern, the
old-established BUSINESS of Messrs. Saunders
and Saunders, at Cleckheaton, now in full work, with a
capacity of 80 tons per week Salt Cake, 15 tons Muriate
of Ammonia, 30 tons Glauber Salts, Nitrate of Iron,
Ammonia, and other dyes solutions.
Apply,
ARMITAGE & NORTON,
Huddersfield.

CHEMICAL WORKS.—Partner
Wanted, chemist preferred, to take Position on
Works. Cash required, £2,000, to £3,000. Works have
cost £12,000. Would guarantee 15 per cent. on the
amount advanced and all works as security. Good profits.
—Address Davis Bros., 32, Blackfriars Street, Manchester.

WANTED estimate for labour; re-
leading Vitriol Chambers.—Address M 80,
Chemical Trade Journal Office, Manchester.

PRACTICAL CHEMIST (Ph.D.,
Heidelberg), with experience in Tar Colours and
Mineral Oil Distillery, desires Situation.—Address G 72,
Chemical Trade Journal Office, Manchester.

TO TAR DISTILLERS, or Gas
Companies working their Tar or Liquor.—Adver-
tiser is open for a Situation as FOREMAN, or to take
charge of Stills; 15 years practical experience, thoroughly
understanding both Tar and Sulphate of Ammonia; good
reference.—Address A 78, Chemical Trade Journal Office,
Manchester.

TO MANUFACTURING CHEMISTS.

SITUATION wanted by Advertiser
to take charge of Works, or as Foreman. 20 years
experience at home and abroad; thoroughly competent to
erect plant, etc., or would take temporary charge of erection
of works and plant. No objection to go abroad.—
H 81, Chemical Trade Journal Office, Manchester.

Miscellaneous.—Cont.

SOLVENT NAPHTHA—A London buyer wishes to correspond with a manufacturer who is willing to separate this into two portions, as required. Naphtha tainted with petroleum in the gas manufacture objected to.—Address P. T. George, 15, Lansdowne Road, Upton Park, London, E.

WANTED an experienced chemist, understanding thoroughly the making of Borax after the newest and best way, in order to erect a works.—Address, H79, *Chemical Trade Journal* Office, Manchester.

WANTED, either in Chemical Works or Research Laboratory, a position as Junior Analyst; good references.—Address G 80, *Chemical Trade Journal* office, Manchester.

A GENTLEMAN, Ph.D., with considerable practical experience in Organic Chemistry, also with thorough practice in Analytical Work, desires **SITUATION**.—Address W 73, *Chemical Trade Journal* Office, Manchester.

SULPHATE of Lime, calcined, For Sale, cheap, in large and regular quantities.—Address Sadler & Co., Limited, Middlesbrough.

FILTER and HYDRAULIC PRESSES For Sale, large sizes.—Apply "Presses," *Chemical Trade Journal* Office, Manchester.

SOAP PLANT (modern) For Sale. Practically equal to new. Three Coppers (one 10-ton, one 5-ton, one about 3-ton), frames, etc.—Apply to H 64, *Chemical Trade Journal* Office, Manchester.

QUOTATIONS WANTED for Fluid Magnesia Plants, of all sizes, with capacity and to state clearly how strong the plants are capable of making Fluid Magnesia—i.e., how many grains MgO per fluid ounce it is possible to obtain. "Magnesia," *Chemical Trade Journal* Office.

QUOTATIONS given for Fluid Magnesia of highest possible strengths for manufacturing or pharmaceutical purposes; also for any quantity of Carbonate, Calcined or Hydrate of Magnesia. Buyers' samples matched.—The Washington Chemical Co., Ltd., Washington Station, Co. Durham.

TO BE SOLD, the **LANCASHIRE MANURE COMPANY'S WORKS** at Widnes with Machinery and 24,420 square yards of Freehold Land.—Address J. Hosking, 16, Fenwick Street, Liverpool.

AMMONIA, all qualities and strengths. Enquiries solicited. BROTHERTON & Co., Birmingham, Leeds, and Wakefield.

Advertisements which arrive too late for insertion on this page will be found on first page of Matter (opposite Leading Article).

HARPER'S LIST

OF ACCESSORIES for the TRANSMISSION of POWER, viz.:—BELT PULLEYS, ROPE PULLEYS, GEAR WHEELS, SHAFTING, COUPLINGS, PEDESTALS, FIXINGS; appears on Pages 14 and 15 of the first and third *Chemical Trade Journal* of each month.

DYEING AND TISSUE-PRINTING.

By WILLIAM CROOKES, F.R.S., V.P.C.S.
5s.

"Whether viewed in connection with the examination room or the dye-house, the volume is one which deserves a word of welcome."—*Academy*.

"The only previous qualification of which the student is assumed to be possessed is an elementary knowledge of chemistry such as may be acquired from almost any of the rudimentary treatises on that science. The author, building upon this foundation, seeks to explain the principles of the art from a practical rather than from a theoretical point of view. From the very outset he endeavours to explain everything with which the learner might be puzzled."—*Chemical News*.

LONDON: WHITTAKER & CO.,
PATERNOSTER SQUARE.

DO YOU USE STANDARD SOLUTIONS?

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CATALOGUE FREE ON APPLICATION.

PHILIP HARRIS & CO., Ltd., 144 and 146, Edmund Street, BIRMINGHAM.
Contractors to the Admiralty, Indian, Canadian, and Tasmanian Governments, &c., &c.

STONEWARE ACID PANS, COCKS, RECEIVERS, &c.
JAS. STIFF & SONS,
LAMBETH, LONDON, S.E.,
MANUFACTURE EVERY KIND OF VITRIFIED STONEWARE,
CHEMICAL APPARATUS,
INSULATORS, BATTERY JARS, POROUS CELLS, BOTTLES, JARS,
CONDENSING WORMS, PLUMBAGO & FIRE-CLAY CRUCIBLES.

PURE SULPHUROUS ACID,
SULPHITES AND BISULPHITES OF LIME, SODA, &c.
FOR EXPORT.

S. KEYS & CO. Limited, WEST BROMWICH.

ACCURATE STANDARD SOLUTIONS.

Mr. FRANCIS SUTTON, F.I.C., F.C.S., has a Special Laboratory for the Manufacture of these Solutions for every variety of Analysis by Volumetric Methods, and on any System of Measurement; also Indicators, Test Papers, and all requisites.

Special Prices quoted to Large Consumers. Price List on application to

FRANCIS SUTTON & CO., NORWICH.

TUBES

IRON and STEEL (butt or lap welded),
and **FITTINGS** for Gas, Water, Steam, Liquid

Ammonia, and Hydraulic Work, galvanized white enamelled inside, or coated by Dr. Angus Smith's Composition. In stock to 8 in. diameter.

COILS for heating, super-heating, distilling and refrigerating purposes, to 500 feet long without joints

JOHN SPENCER, 2.00
Globe Tube Works, Wednesbury, and 14, Great St. Thomas Apostle, Cannon-st., London, E.C.

BRYAN CORCORAN,
MILLSTONE BUILDER,

WIRE WEAVER, MACHINE MANUFACTURER,
AND GENERAL MILL FURNISHER.

Sole Maker of **MILBURN'S**
Patent Conoidal Stone Grinding Mills.

Especially suitable for certain
materials, Wet or Dry.

Works and Warehouses:

Back Church Lane. Parcel Dept.: Basement of the
Corn Exchange.

31, MARK LANE, LONDON.

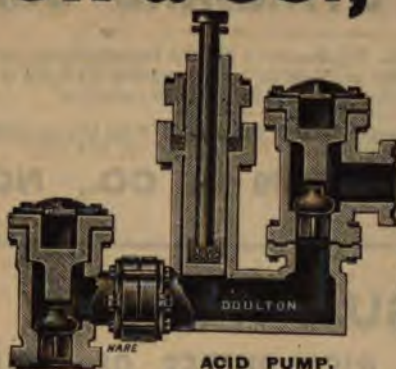
CANNINGTON, SHAW & CO., LIMITED,

CARBOYS.

SHERDLEY GLASSWORKS, ST. HELENS.

Liverpool: Exchange Chambers
Glasgow: West Campbell-st.

Manchester: Oldham Road,
London: Worship Street, E.C.

DOULTON & CO.,LAMBETH,
LONDON, S.E.MANUFACTURERS OF
**STONEWARE
CHEMICAL
APPARATUS**OF
EVERY DESCRIPTION.PRICE LISTS
ON APPLICATION.SHOWROOMS: 17, Deansgate, Manchester; 100, Soho St., Liverpool;
Granville St., Birmingham; 6, Rue de Paradis, Paris.

ACID PUMP.

**IMPROVED
STONEWARE
ACID PUMPS.**Each Pump prior to
leaving the Factory
is put into actual
work and tested.**SPENCE'S
LUMP ALUM**

(POTASH or AMMONIA).

The Leading Make for nearly Half a Century.

Also PURE SULPHATE OF ALUMINA and ALUMINOFERRIC.

PETER SPENCE & SONS, Manchester Alum Works, MANCHESTER.

BLAYDON MANURE AND ALKALI COMP.'S
PURE WHITE SULPHATE OF ALUMINA,
BLANC FIXE, CHLORIDE, NITRATE,
AND SULPHIDE OF BARIUM.UNITED ALKALI COMP.'S
HYPO-SULPHITE OF SODA,
WALTHER FELD & CO.'S

PURE PRECIP. CARBONATE OF BARYTES 96/98%.

Also Hydrate and Anhydrous Alumina, Chloride and Carbonate of
Alumina, Aluminate of Soda, Hydrate of Barium, &c.

Agents: JULIUS HULSEN & CO., NEWCASTLE-ON-TYNE.

OVER 25,000 ARE WORKING.LIQUOR
RAISERS.BOILING
NOZZLES.SILENT
HEATERS.VACUUM
EJECTORS.AIR, &c.
EXHAUSTERS.**FAIRBURN & HALL,** Chief Office } 63, Royal Exchange, MANCHESTER**Tenders.**

MANCHESTER CORPORATION GAS WORKS.

AMMONIACAL LIQUOR.

THE Gas Committee of the Corporation of Manchester are prepared to receive TENDERS for the PURCHASE and REMOVAL of the AMMONIACAL LIQUOR to be produced at the Gaythorn, Rochdale-road, and Bradford-road Gasworks during a period of one or more years, commencing at noon on the 30th day of June, 1894.

The committee do not bind themselves to accept the lowest or any tender.

Sealed tenders, addressed to the Chairman of the Gas Committee and endorsed "Tender for Ammoniacal Liquor" must be delivered at the offices of the Gas Department, Town Hall, on or before Monday, the 4th of September, 1893.

Forms of tender and further particulars may be obtained on application, in writing only to Mr. CHARLES NICKSON, Superintendent of the Department.

A deposit of one guinea (which will be returned on receipt of the tender) must accompany each application for a tender form.

By order of the Gas Committee,

WM. HENRY TALBOT,

Town Clerk.

Town Hall, Manchester,
21st July, 1893.

TO TAR DISTILLERS AND OTHERS. □

THE Directors of the Gloucester Gas Light Company invite TENDERS for the surplus TAR produced at their Works for One, Two, or Three Years, from the 1st day of October next.

The Tar will be delivered into Boats or Barges at the Company's Wharf, on the Gloucester and Berkeley Canal. Offers to be at per ton of 200 gallons, and per ton by weight.

Payments, cash monthly.

Further Particulars may be obtained on application to Mr. R. Morland, the Company's Engineer.

Sealed tenders, endorsed "Tender for Tar," and addressed to the Chairman, Gas Offices, Eastgate, Gloucester, to be delivered not later than Wednesday, the 30th day of August inst.

The Directors do not bind themselves to accept the highest or any tender.

By order,

WILLIAM E. VINSON,

Secretary.

Gas Offices, Gloucester,
Aug. 10th, 1893.RADCLIFFE AND PILKINGTON GAS
COMPANY.

TO TAR DISTILLERS.

THE Directors of this Company invite TENDERS for the Purchase of 700 tons of the SURPLUS TAR now in stock and to be produced at their Works, in Radcliffe, during the ensuing Ten Months. Particulars may be obtained from the undersigned to whom endorsed tenders must be delivered not later than Thursday, the 31st inst.

JAMES BRADDOCK,

Manager and Secretary.

Gas Works, Radcliffe,
August 16th, 1893.

BOROUGH OF WIDNES.

THE Widnes Corporation invite TENDERS for the purchase of about 700 tons GAS TAR from their Gas Works for the Twelve Months ending 30th September, 1894.

Forms of tender and conditions of contract may be obtained from Mr. I. CARR, A.M.I.C.E., Gas Works, Widnes.

Endorsed tenders to be delivered to the undersigned not later than the 4th September prox.

The Corporation do not bind themselves to accept a tender.

H. S. OPPENHEIM,

Town Clerk.

Town Hall, Widnes,
August 12th, 1893.**Miscellaneous.**

Replies to Advertisements addressed to the "Chemical Trade Journal" Office are forwarded to Advertisers, post free, on the day of their receipt.

YOUNG married CHEMIST seeks appointment. Certificated two years at Finsbury College; four years responsibility at Tar Works (London and abroad). Would do French and German correspondence; references.—Address "Tar," 59, Alderney Street, Pimlico, London, S.W.

Miscellaneous.—Cont.

PHOSPHORUS.—Wanted, a working FOREMAN, who thoroughly understands the manufacture, and who has a good idea of Plant.—Address "Phosphorus," c/o Deacon's Advertising Offices, 154, Leadenhall Street, London, E.C.

WANTED, a good working FOREMAN, who understands the Manufacture of Salt Cake.—Address "Salt Cake," c/o Deacon's Advertising Offices, 154, Leadenhall Street, London, E.C.

TO TAR DISTILLERS, or Gas Companies working their Tar or Liquor.—Advertiser is open for a Situation as FOREMAN, or to take charge of Stills; 15 years practical experience, thoroughly understanding both Tar and Sulphate of Ammonia; good reference.—Address A 78, *Chemical Trade Journal* Office, Manchester.

CHEMICAL WORKS.—Partner Wanted to take Position on Works. Cash required, £3,000. to £5,000. Works have cost £12,000. Would guarantee 15 per cent. on the amount advanced and all works as security. Good profits.—Address in the first instance to Davis Bros., 32, Blackfriars Street, Manchester.

SOLVENT NAPHTHA.—A London buyer wishes to correspond with a manufacturer who is willing to separate this into two portions, as required. Naphtha tainted with petroleum in the gas manufacture objected to.—Address P. T. George, 15, Lansdowne Road, Upton Park, London, E.

SULPHATE of Lime, calcined, For Sale, cheap, in large and regular quantities.—Address Sadler & Co., Limited, Middlesbrough.

FILTER AND HYDRAULIC PRESSES For Sale, large sizes.—Apply "Presses," *Chemical Trade Journal* Office, Manchester.

SOAP PLANT (modern) For Sale. Practically equal to new. Three Coppers (one 10-ton, one 5-ton, one about 3-ton), frames, etc.—Apply to H 64, *Chemical Trade Journal* Office, Manchester.

QUOTATIONS given for Fluid Magnesia of highest possible strengths for manufacturing or pharmaceutical purposes; also for any quantity of Carbonate, Calcined or Hydrate of Magnesia. Buyers' samples matched.—The Washington Chemical Co., Ltd., Washington Station, Co. Durham.

OLIVOLINE and ATEROLINE. Two perfect non-gumming Lubricating Oils. 20 years in use. Made to suit every class of machinery ashore or afloat. Gentlemen who can influence business are offered liberal terms. Sole Makers, DUNCAN, WATSON & Co., Oil Manufacturers and Mill Furnishers, Dashwood House, New Broad-street, London, E.C.

WE let Disintegrators, Stone and Ore Breakers, Edge Runner Mills, Mixing Machines, Roller Mills, and Engines both new and second-hand, on terms to suit all.—S. Mason and Co., Engineers, Brandon Street, Leicester.

TO BE SOLD, the LANCASHIRE MANURE COMPANY'S WORKS at Widnes with Machinery and 24,450 square yards of Freehold Land.—Address J. Hosking, 16, Fenwick Street, Liverpool.

AMMONIA, all qualities and strengths. Enquiries solicited. BROTHERTON & Co., Birmingham, Leeds, and Wakefield.

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COAL-TAR COLOURS, The Chemistry of.

With special reference to their application to Dyeing, &c. By DR. R. BENEDIKT, Professor of Chemistry in the University of Vienna. Translated from the German by E. KNECHT, Ph.D., Head Master of the Chemistry and Dyeing Department in the Technical College, Bradford. 2nd Edition, Revised and Enlarged, 6s. 6d.

"The original work is popular in Germany, and the translation ought to be equally appreciated here, not only by students of organic chemistry, but by all who are practically concerned in the dyeing and printing of textile fabrics."—*The Athenaeum*.

"The volume contains, in a little space, a vast amount of most useful information classified in such a manner as to show clearly and distinctly the chief characteristics of each colouring matter, and the relationship existing between one series of compounds and another."—*Journal of the Society of Dyers and Colourists*.

ACCURATE STANDARD SOLUTIONS.

Mr. FRANCIS SUTTON, F.I.C., F.C.S., has a Special Laboratory for the Manufacture of these Solutions for every variety of Analysis by Volumetric Methods, and on any System of Measurement; also Indicators, Test Papers, and all requisites.

Special Prices quoted to Large Consumers. Price List on application to

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**PURE SULPHUROUS ACID,
SULPHITES AND BISULPHITES OF LIME, SODA, &c.
FOR EXPORT.**

S. KEYS & CO. Limited, WEST BROMWICH.

ASSAYER.

B. KITTO, F.I.C.,
30 & 31, ST. SWITHIN'S LANE,
LONDON, E.C.

TUBES

IRON and STEEL (butt or lap welded), and FITTINGS for Gas, Water, Steam, Liquid Ammonia, and Hydraulic Work, galvanized white enamelled inside, or coated by Dr. Angus Smith's Composition. In stock to 8in. diameter.

COILS for heating, super-heating, distilling and refrigerating purposes, to 500 feet long without joints

JOHN SPENCER, 2.00
Globe Tube Works, Wadnesbury, and 14, Great St. Thomas Apostle, Cannon-st., London, E.C.

GREAT REDUCTION IN PRICE.

The most complete
Respirator

or protecting the Lungs and Throat from dust, poisonous gases, and all other impurities.

Specially adapted for workmen in white lead corroding works, glass and blast furnaces chemical pulverizing, paint and colour works, &c.

Sample 6s. each. If 12 pieces ordered, 5s. each, post free to any address in the United Kingdom on application to

E.F. GRELL, Hamburg, Germany.

HENRY ROBINSON,

Maker of Improved Shape Iron Hampers,

Registered No. 50,041.

BRADFORD, MANCHESTER.

SULPHURIC ACID.

JOHN NICHOLSON & SONS,

Chemical Works, LEEDS, specially produce this ACID from BRIMSTONE, for making SULPHATE OF AMMONIA of high quality and good colour. Delivery in our own Railway Tank-Wagons or Carboys. Highest references and all particulars supplied on application

BRYAN CORCORAN,
MILLSTONE BUILDER,



WIRE WEAVER, MACHINE MANUFACTURER, AND GENERAL MILL FURNISHER.

Sole Maker of MILBURN'S

Patent Conoidal Stone Grinding Mills.

Especially suitable for certain materials, Wet or Dry.

Works and Warehouses:

Back Church Lane. Parcel Dept.: Basement of the Corn Exchange.

31, MARK LANE, LONDON.

CANNINGTON, SHAW & CO., LIMITED,

CARBOYS.

SHERDLEY GLASSWORKS, ST. HELENS.

Liverpool: Exchange Chambers
Glasgow: West Campbell st.

Manchester: Oldham Road,
London: 7, Warship Street, E.C.

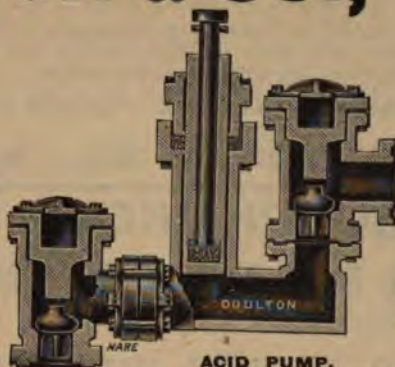
DOULTON & CO.,

LAMBETH,

LONDON, S.E.

MANUFACTURERS OF
**STONEWARE
CHEMICAL
APPARATUS**
OF
EVERY DESCRIPTION.

PRICE LISTS
ON APPLICATION.



ACID PUMP.

**IMPROVED
STONEWARE
ACID PUMPS.**

Each Pump prior to
leaving the Factory
is put into actual
work and tested.

SHOWROOMS: 17, Deansgate, Manchester; 100, Soho St., Liverpool;
Granville St., Birmingham; 6, Rue de Paradis, Paris.

SPENCE'S LUMP ALUM

(POTASH or AMMONIA).

The Leading Make for nearly Half a Century.

Also PURE SULPHATE OF ALUMINA and ALUMINO-FERRIC.

PETER SPENCE & SONS, Manchester Alum Works, MANCHESTER.

BLAYDON MANURE AND ALKALI COMP.'S
PURE WHITE SULPHATE OF ALUMINA,
BLANC FIXE, CHLORIDE, NITRATE,
AND SULPHIDE OF BARIUM.

UNITED ALKALI COMP.'S
HYPO-SULPHITE OF SODA,

WALTHER FELD & CO.'S

PURE PRECIP. CARBONATE OF BARYTES 96/98%.

Also Hydrate and Anhydrous Alumina, Chloride and Carbonate of
Alumina, Aluminate of Soda, Hydrate of Barium, &c.

Agents: JULIUS HULSEN & CO., NEWCASTLE-ON-TYNE.

OVER 25,000 ARE WORKING.



LIQUOR
RAISERS.

BOILING
NOZZLES.

SILENT
HEATERS.

VACUUM
EJECTORS.

AIR, &c.
EXHAUSTERS.

FAIRBURN & HALL, Chief Office } 63, Royal Exchange, MANCHESTER.

Tenders.

BOROUGH OF WORKINGTON.

TENDERS FOR TAR AND AMMONIACAL LIQUOR.

THE Corporation of Workington are prepared to receive TENDERS for the Surplus TAR and AMMONIACAL LIQUOR produced at these Works during the year ending 30th September, 1894.

The quantity of Coal carbonized is about 6 000 tons per annum.

Tenders sealed, and endorsed "Tender for Tar and Ammoniacal Liquor," to be forwarded to the undersigned not later than the 19th September, 1893.

Any information respecting the above can be had from Mr. JNO. JOHNSTON, Engineer and Manager,

JNO. WARWICK,

Town Clerk.

Town Hall,
26th August, 1893.

NORTHAMPTON GAS LIGHT COMPANY.

TENDERS FOR TAR.

THE Directors are prepared to receive Tenders for the purchase and removal of the SURPLUS TAR produced at their works for a term of one or two years.

Quantity produced about 2,400 tons per annum.

Particulars may be had on application.

The Directors do not bind themselves to accept any Tender.

Tenders marked "Tender for Tar," to be delivered at the Company's offices on or before Tuesday, 19th September next.

JOHN EUNSON,
Engineer.

Gas Works, Northampton,
30th August, 1893.

Miscellaneous.

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ADVERTISER, 24, desires an engagement in a Tar Works; has had several years' experience on a large works in the practical distillation of Tar and manufacture of products; good references.—W 85, Chemical Trade Journal Office, Manchester.

SITUATION Wanted; manufacturing experience—White Lead; Products from—Kelp; Distillation of Wood; Liquid Ammonia; Manures, &c., &c. General Technical and Mechanical knowledge. Has managed; re-organized, travelled, and interviewed. Would take partial, full, or temporary control.—A, Chemical Trade Journal Office, Manchester.

CHEMIST Wanted for a Sulphuric and Nitric Acid Works.—Apply to L 84, Chemical Trade Journal Office, Manchester.

ESTIMATE Wanted for Small Plant, about 10 tons per week, for making Caustic Soda from Soda Ash.—L 85, Chemical Trade Journal Office, Manchester.

WANTED, at Home or Abroad, Situation as MANAGER in Chemical Works. Destructive distillation of wood. Some years practical experience in one of the largest works in England.—W 84, Chemical Trade Journal Office, Manchester.

YOUNG married CHEMIST seeks appointment. Certificated two years at Finsbury College; four years responsibility at Tar Works (London and abroad). Would do French and German correspondence; references.—Address "Tar," 59, Alderney Street, Pimlico, London, S.W.

CHEMICAL WORKS.—Sleeping Partner Wanted to take Position on Works. Cash required, £2,000. to £3,000. Works have cost £12,000. Would guarantee 15 per cent. on the amount advanced and all works as security. Good profits.—Address in the first instance to Davis Bros., 32, Blackfriars Street, Manchester.

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Miscellaneous.—Cont.

WE let Disintegrators, Stone and Ore Breakers, Edge Runner Mills, Mixing Machines, Roller Mills, and Engines both new and second-hand, on terms to suit all.—S. Mason and Co., Engineers, Grandon Street, Leicester.

SOAP PLANT (modern) For Sale. Practically equal to new. Three Coppers (one 10-ton, one 5-ton, one about 3-ton), frames, etc.—Apply to H 64, *Chemical Trade Journal* Office, Manchester.

TO BE SOLD, the LANCASHIRE MANURE COMPANY'S WORKS at Widnes with Machinery and 24,420 square yards of Freehold Land.—Address J. Hosking, 16, Fenwick Street, Liverpool.

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Colour in Woven Design.

By Professor ROBERTS BEAUMONT, of the Textile Industries Department, The Yorkshire College. With 32 Coloured Plates and numerous Illustrations. 21s.

"An excellent work on the application of colour to woven design."—*Textile Manufacturer*.

"The illustrations are the finest of the kind we have yet come across, and the publishers are to be congratulated on the general excellence of the work."—*Textile Mercury*.

LONDON: WHITTAKER & CO., PATERNOSTER SQUARE.

THOMAS R. B. BINDLEY & SON
GLUE, GELATINE, and

Concentrated Size Manufacturers,
SMETHWICK, near BIRMINGHAM.

LUMP ALUM

For Export.

WM. JANCKE,
ANTWERP, (BELGIUM).

Manlove, Alliot & Co. Ltd.,
ENGINEERS,
NOTTINGHAM.

See Advertisement in first issue of this month

ASSAYER.

B. KITTO, F.I.C.,
30 & 31, ST. SWITHIN'S LANE,
LONDON, E.C.

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FOR EXPORT.**

S. KEYS & CO. Limited, WEST BROMWICH.

Respirator or Lung Preserver.

To Protect the LUNGS & THROAT from Dust, Poisonous Gases & other Impurities.

PREVENTING DISEASE AND PROLONGING LIFE.



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Air is inhaled through a moist sponge and given out through an automatic valve.

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IRON and STEEL (butt or lap welded), and **FITTINGS** for Gas, Water, Steam, Liquid Ammonia, and Hydraulic Work, galvanized white enamelled inside, or coated by Dr. Angus Smith's Composition. In stock to 8in. diameter.

COILS for heating, super-heating, distilling and refrigerating purposes, to 500 feet long without joints

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Globe Tube Works, Wednesbury, and 14, Great St. Thomas Apostle, Cannon-st., London, E.C.

BRYAN CORCORAN, MILLSTONE BUILDER,

WIRE WEAVER, MACHINE MANUFACTURER, AND GENERAL MILL FURNISHER. Sole Maker of MILBURN'S Patent Conoidal Stone Grinding Mills. Especially suitable for certain materials, Wet or Dry.

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CANNINGTON, SHAW & CO., LIMITED,**CARBOYS.**

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Liverpool: Exchange Chambers
Glasgow: West Campbell-st.

Manchester: Oldham Road,
London: Worship Street, E.C.

WALKER BROS., ENGINEERS, PAGEFIELD IRONWORKS, WIGAN.

WALKER'S PATENT
AIR COMPRESSING ENGINES.
GAS COMPRESSING ENGINES.
70,000 I.H.P. ALREADY AT WORK.

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EXHAUST AND BLAST FANS.

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DYERS, CALICO PRINTERS, AND OTHERS
Can readily PURIFY THEIR WASTE WATERS by the simple and inexpensive
ALUMINOFERRIC PROCESS.

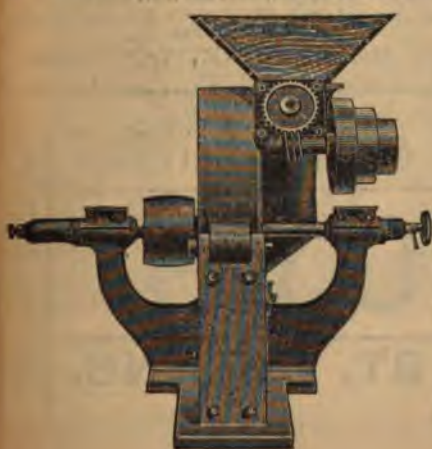
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PUREST SULPHATE OF ALUMINA.
FLUORIDE OF CHROME (Patented). ANTIMONY SALTS.
CRYSTAL ALUM. HYPOSULPHITE OF SODA.
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ZINC OXIDE, PURE ACETIC, TANNIC, & SALICYLIC
ACIDS, NITRATE & CHLORIDE OF BARIUM, &c.

Peacock's "Manchester" Disintegrator.



Will grind and dress any material,
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Vibration reduced to a minimum.
Twenty years' experience.
Grinding and Dressing Machinery
a speciality.
Made Self and Hand Feed.
Wrought Iron Pulleys, Shafting
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W. H. PEACOCK,
Chemical Engineer & Millwright,
BRADFORD, MANCHESTER.

Tenders.

KIDDERMINSTER GAS LIGHT AND COKE COMPANY.
THE Directors invite Tenders for the SURPLUS TAR produced at their Works for a term of one or more years, from 31st October next. Particulars may be had on application. Tenders to be delivered at the Company's Offices not later than 26th inst. Gas Works, Kidderminster, 9th September, 1893.

BOROUGH OF WORKINGTON.

TENDERS FOR TAR AND AMMONIACAL LIQUOR.
THE Corporation of Workington are prepared to receive TENDERS for the Surplus TAR and AMMONIACAL LIQUOR produced at these Works during the year ending 30th September, 1894. The quantity of Coal carbonized is about 6,000 tons per annum. Tenders sealed, and endorsed "Tender for Tar and Ammoniacal Liquor," to be forwarded to the undersigned not later than the 19th September, 1893. Any information respecting the above can be had from Mr. JNO. JOHNSTON, Engineer and Manager, JNO. WARWICK, Town Clerk, Town Hall, 26th August, 1893.

NORTHAMPTON GAS LIGHT COMPANY.

TENDERS FOR TAR.

THE Directors are prepared to receive Tenders for the purchase and removal of the SURPLUS TAR produced at their works for a term of one or two years. Quantity produced about 2,400 tons per annum. Particulars may be had on application. The Directors do not bind themselves to accept any Tender. Tenders marked "Tender for Tar," to be delivered at the Company's offices on or before Tuesday, 19th September next. JOHN EUNSON, Engineer. Gas Works, Northampton, 30th August, 1893.

Miscellaneous.

TO TAR DISTILLERS, or Gas
Companies working their Tar or Liquor.—Advertiser is open for a Situation as FOREMAN, or to take charge of Stills; 15 years practical experience, thoroughly understanding both Tar and Sulphate of Ammonia; good reference.—Address A 75, Chemical Trade Journal Office, Manchester.

WANTED, Re-engagement as Fore-
man or Assistant Manager of a Chemical Works, 15 years' experience in the manufacture of Acids, Artificial Manures, &c.; first-class references.—Address "P 86," Chemical Trade Journal Office, Manchester.

MESSRS. CARTWRIGHT
MEAD AND PURVIS, 4, Water Lane, London, E.C., have taken into their employ Mr. T. E. Duncan, who has had 15 years' experience in the Chemical and Acid trades. All communications will have attention.

WORKS CHEMIST Wanted.—
A large firm of Chemical Manufacturers requires the service of an experienced Chemist. A good salary will be paid to a thoroughly capable man. Applicants should state age and experience, and give references.—Address Alpha, Chemical Trade Journal Office, Manchester.

SITUATION Wanted.—Experience:
White Lead, Manures, Petroleum, Ammonia, Manganese Recovery, Vulcanite, Kelp Products, Wood Distillation, &c.; Mechanical knowledge; has managed, travelled, &c.; salary or commission.—"Glacial Acetic," Chemical Trade Journal Office, Manchester.

YOUNG CHEMIST, 26, Dr Phil.,
desires an engagement in any Analytical Laboratory or Chemical Works. Certificated at University in Germany; 24 years experience.—Address Dr. F., Chemical Trade Journal Office, Manchester.

CHEMIST Wanted for a Sulphuric
and Nitric Acid Works.—Apply to L 84, Chemical Trade Journal Office, Manchester.

WANTED, at Home or Abroad,
Situation as MANAGER in Chemical Works. Destructive distillation of wood. Some years practical experience in one of the largest works in England.—W 34, Chemical Trade Journal Office, Manchester.

YOUNG married CHEMIST seeks
appointment. Certificated two years at Finsbury College; four years responsibility at Tar Works (London and abroad). Would do French and German correspondence; references.—Address "Tar," 59, Alderney Street, Pimlico, London, S.W.

Miscellaneous.—Cont.

CHEMICAL WORKS.—Sleeping Partner Wanted to take Position on Works. Cash required, £2,000. to £3,000. Works have cost £12,000. Would guarantee 15 per cent. on the amount advanced and all works as security. Good profits.—Address in the first instance to Davis Bros., 32, Blackfriars Street, Manchester.

FILTER AND HYDRAULIC PRESSES For Sale, large sizes.—Apply "Presses," Chemical Trade Journal Office, Manchester.

SULPHATE of Lime, calcined, For Sale, cheap, in large and regular quantities.—Address Sadler & Co., Limited, Middlesbrough.

SOAP PLANT (modern) For Sale. Practically equal to new. Three Coppers (one 10-ton, one 5-ton, one about 3-ton), frames, etc.—Apply to H 64, Chemical Trade Journal Office, Manchester.

TO BE SOLD, the LANCASHIRE MANURE COMPANY'S WORKS at Widnes with Machinery and 24,420 square yards of Freehold Land.—Address J. Hosking, 16, Fenwick Street, Liverpool.

AMMONIA, all qualities and strengths. Enquiries solicited. BROTHERTON & Co., Birmingham, Leeds, and Wakefield.

HARPER'S LIST

OF ACCESSORIES for the TRANSMISSION of POWER, viz.:—BELT PULLEYS, ROPE PULLEYS, GEAR WHEELS, SHAFTING, COUPLINGS, PEDESTALS, FIXINGS; appears on Pages 24 and 25 of the first and third Chemical Trade Journal of each month.

By GEORGE LUNGE, Ph.D., Professor of Technical Chemistry, Zurich, and

FERDINAND HURTER, Ph.D., Consulting Chemist to the United Alkali Co., Limited.

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See Full Page Advertisement, Page 13,
Each Month.

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ENGINEERS,
NOTTINGHAM.

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TUBES

IRON and STEEL (butt or lap welded),
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Ammonia, and Hydraulic Work, galvanized white enamelled inside, or coated by Dr. Angus Smith's Composition. In stock to 3in. diameter.

COILS for heating, super-heating, distilling and refrigerating purposes, to 500 feet long without joints

JOHN SPENCER, 2.00
Globe Tube Works, Wednesbury, and 14, Great St. Thomas Apostle, Cannon-st., London, E.C.

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Sole Maker of **MILBURN'S**
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SHERDLEY GLASSWORKS, ST. HELENS.

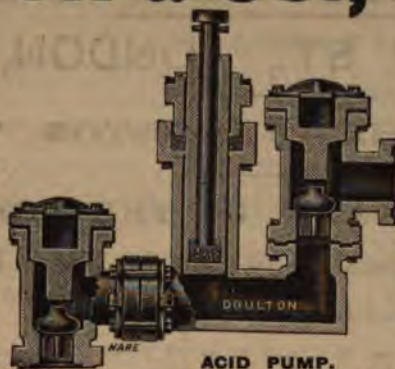
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PURE PRECIP. CARBONATE OF BARYTES 96/98%.

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Tenders.

KIDDERMINSTER GAS LIGHT AND COKE
COMPANY.

THE Directors invite Tenders for
the SURPLUS TAR produced at their Works for
a term of one or more years, from 31st October next.

Particulars may be had on application.
Tenders to be delivered at the Company's Offices not
later than 26th inst.
Gas Works, Kidderminster
9th September, 1893.

TO TAR DISTILLERS AND MANUFACTURING
CHEMISTS.

THE Windsor Royal Gas Light Com-
pany are prepared to receive TENDERS for the
purchase of their surplus COAL TAR and AMMONI-
ACAL LIQUOR (10-oz. Liquor) for One year, from the
3rd day of October, 1893.

The Tar will have to be removed in barrels; but the
Liquor can be pumped into railway tanks on the Great
Western Railway.

The Contractor must be prepared to keep the Company
cleared of both Tar and Liquor, and to provide all the
necessary barrels for the purpose.

The Directors do not bind themselves to accept the
highest or any tender.

Any further information may be obtained on application
to Mr. J. Wadson, Manager.

Sealed tenders, stating price at the Company's Works
free of all charges must be sent in by Twelve o'clock at
Noon on Tuesday, the 3rd day of October, 1893.

By order,

JOHN HENRY STRANGE,
Secretary.

Gas Offices, Victoria Street, Windsor.

THE Stretford Gas Company are
prepared to receive TENDERS for the GAS TAR
and AMMONIACAL LIQUOR produced at their works
(together or separately) for a period of One year, com-
mencing November 1st next.

Tenders to be sent in and addressed to the Chairman,
and endorsed "Tender for Tar, &c.," on or before Thurs-
day, October 5th, 1893.

The Directors do not bind themselves to accept the
highest or any tender.

BENJAMIN HAYNES,
Secretary.

Stretford, near Manchester.

Miscellaneous.

Replies to Advertisements addressed to the
"Chemical Trade Journal" Office are forwarded to
Advertisers, post free, on the day of their receipt.

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MESSRS. FULLER, HORSEY,
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YORKSHIRE, on WEDNESDAY, October 18, at 12.30
precisely (unless previously sold as a whole), PLANT and
MACHINERY, including iron vacuum pan, with
copper worms and condenser; a "Hersey" granulator, air pro-
peller, set of sugar crushing rolls, one copper and two iron
cooling pans, Special pump by Tangye, Roots blower,
three 48-in. hydro-extractors, by Manlove and Alliott; a
60-in. under-driven ditto, by Broadbent, with independent
engine; pair of 5in. brass barrel syrup pumps, pair of
cast iron ditto, with engine; pair of 4in. lift pumps, 6in.
Helical centrifugal pump, a 22in. vacuum pump, with
engine; 30 tanks (various), six charcoal cisterns, charcoal
elevator and screen, Fichet's patent charcoal re-burning
kiln for gas four Johnson's filter presses, two oak syrup
vats, 10 Weinreich's 36in. centrifugal machines, blowing-
up cistern, screw-cutting lathe, vertical drilling machine,
by Darling and Sellers; a 20cwt. steam travelling crane,
by Wilson; three weighing machines, by Hart and
Denison; sugar sawing and cutting machines, set of new
triple expansion engines, by Tangye; three horizontal
engines, multitubular Cornish and Lancashire boilers, with
Vicars' mechanical stokers; boiler feed pump, Decau-
ville railway smiths' forge and tools, iron and lead
piping, and numerous other effects.

May be viewed by orders, and catalogues had on the
premises; of Messrs. Murray, Hutchins, Stirling, and
Murray, Solicitors, 11, Birch Lane, London, E.C.; and
of the Auctioneers, 11, Billiter Square, London, E.C.

SITUATION WANTED.—Experi-
ence: White Lead, Manures, Petroleum, Ammoniacal
Manganese Recovery, Kelp Products, Wood Distillation,
etc., etc.; mechanical knowledge; has managed, travelled,
etc.; adaptable, reliable; salary or commission.—
"Acetic," 150, Goswell Road, London.

FOR Sale, Two Square Hydrochloric
Acid Condensing Towers, in good condition.—Apply,
T. Simpkin, Runcorn.

Miscellaneous.—Cont.**TO TAR DISTILLERS, or Gas**

Companies working their Tar or Liquor.—Advertiser is open for a Situation as FOREMAN, or to take charge of Stills; 15 years practical experience, thoroughly understanding both Tar and Sulphate of Ammonia; good reference.—Address A 78, *Chemical Trade Journal* Office, Manchester.

WANTED, Re-engagement as Fore-

man or Assistant Manager of a Chemical Works. 15 years' experience in the manufacture of Acids, Artificial Manures, &c.; first-class references.—Address "P 86," *Chemical Trade Journal* Office, Manchester.

WORKS CHEMIST Wanted.—

A large firm of Chemical Manufacturers requires the service of an experienced Chemist. A good salary will be paid to a thoroughly capable man. Applicants should state age and experience, and give references.—Address Aloha, *Chemical Trade Journal* Office, Manchester.

YOUNG CHEMIST, age 24, de-

sires Situation in Chemical Works, at home or abroad. Four years at Science College; good knowledge of chemistry, physics, mechanical drawing, etc.—Address, F 86, *Chemical Trade Journal* Office, Manchester.

MAGNESITE, Calcined, from

Greek ore, several tons FOR SALE.—Apply to B 87, *Chemical Trade Journal* Office, Manchester.

WANTED, at Home or Abroad,

Situation as MANAGER in Chemical Works. Destructive distillation of wood. Some years practical experience in one of the largest works in England.—W 24, *Chemical Trade Journal* Office, Manchester.

CHEMICAL WORKS.—Sleeping

Partner Wanted to take Position on Works. Cash required, £2,000, to £3,000. Works have cost £12,000. Would guarantee 15 per cent. on the amount advanced and all works as security. Good profits.—Address in the first instance to Davis Bros., 32, Blackfriars Street, Manchester.

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Two perfect non-gumming Lubricating Oils. 20 years in use. Made to suit every class of machinery ashore or afloat. Gentlemen who can influence business are offered liberal terms. Sole Makers, DUNCAN, WATSON & Co., Oil Manufacturers and Mill Furnishers, Dashwood House, New Broad-street, London, E.C.

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Sale, cheap, in large and regular quantities.—Address Sadler & Co., Limited, Middlesbrough.

SOAP PLANT (modern) For Sale.

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strengths. Enquiries solicited. BROTHERTON & Co., Birmingham, Leeds, and Wakefield.

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HARPER'S LIST

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Special Prices quoted to Large Consumers. Price List on application to

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IRON and STEEL (butt or lap welded),
and FITTINGS

for Gas, Water, Steam, Liquid Ammonia, and Hydraulic Work, galvanized white enamelled inside, or coated by Dr. Angus Smith's Composition. In stock to 8 in. diameter.

COILS for heating, super-heating, distilling and refrigerating purposes, to 500 feet long without joints

JOHN SPENCER, 1.00
Globe Tube Works, Wednesbury, and 14, Great St. Thomas Apostle, Cannon-st., London, E.C.

Just Published. Crown 8vo., 530 pages, 12s. 6d.

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Being a Practical Guide to the Art of Beer Making, embracing the conclusions of Modern Science which bear upon the Practice of Brewing. By J. WRIGHT, M.A., Author of "The Handbook for Brewers."

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LONDON:
E. & F. N. SPON, 125, S

BRYAN CORCORAN**MILLSTONE BUILD**

WIRE WEAVER, MACHINE MANUFACTURER, AND GENERAL MILL FURNISHING. Sole Maker of MILBURN Patent Conoidal Stone Crindles.

Especially suitable for materials, Wet or Dry. Works and Warehouse

Back Church Lane. Parcel Dept. 7, BRANCO Corn Exchange.

31, MARK LANE, LONDON**CANNINGTON, SHAW & CO., LIMITED,****CARBOYS.****SHERDLEY GLASSWORKS, ST. HELENS**

Liverpool: Exchange Chambers
Glasgow: West Campbell-st.

WALKER BROS., ENGINEERS, PAGEFIELD IRONWORKS, WIGAN.

WALKER'S PATENT
R COMPRESSING ENGINES.
S COMPRESSING ENGINES.
70,000 I.H.P. ALREADY AT WORK.

WALKER'S PATENT
HAUST AND BLAST FANS.

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DYERS, CALICO PRINTERS, AND OTHERS
ily PURIFY THEIR WASTE WATERS by the simple and inexpensive
ALUMINO-FERRIC PROCESS.

Full Particulars on application to—

R SPENCE & SONS, Manchester Alum Works, MANCHESTER.

R. W. GREEFF & CO.,
MINING LANE, LONDON, E.C.

IMPORTERS OF

REST SULPHATE OF ALUMINA.
RIDE OF CHROME (Patented). ANTIMONY SALTS.
YSTAL ALUM. HYPOSULPHITE OF SODA.
SUGAR OF LEAD, WHITE AND BROWN.
OXIDE, PURE ACETIC, TANNIC, & SALICYLIC
IDS, NITRATE & CHLORIDE OF BARIUM, &c.

ock's "Manchester" Disintegrator.



Will grind and dress any material,
animal, vegetable, or mineral.
Vibration reduced to a minimum.
Twenty years' experience.
Grinding and Dressing Machinery
a speciality.
Made Self and Hand Feed.
Wrought Iron Pulleys, Shafting
Hangers, and Pedestals.

W. H. PEACOCK,
Chemical Engineer & Millwright,
BRADFORD, MANCHESTER.

Tenders.

THE Middleton Corporation invite
TENDERS for about 400 tons of TAR now lying
at the Gas Works, Middleton.
Form of tender may be obtained from Mr. T. Duxbury,
Gas Manager.
Tenders to be addressed to the Chairman of the Gas
Committee, endorsed "Tender for Tar," and delivered at
my office, on or before Monday, 16th October, 1893.
FREDERICK ENTWISTLE,
Town Clerk.
Town Hall, Middleton, near Manchester,
25th September, 1893.

THE Stretford Gas Company are
prepared to receive TENDERS for the GAS TAR
and AMMONIACAL LIQUOR produced at their works
(together or separately) for a period of One year, com-
mencing November 1st next.
Tenders to be sent in and addressed to the Chairman,
and endorsed "Tender for Tar, &c," on or before Thurs-
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The Directors do not bind themselves to accept the
highest or any tender.

BENJAMIN HAYNES,
Secretary.

Stretford, near Manchester.

Miscellaneous.

Replies to Advertisements addressed to the
"Chemical Trade Journal" Office are forwarded to
Advertisers, post free.

WORKS CHEMIST WANTED.—
A large firm of Chemical Manufacturers requires
a first-class Chemist; salary, £500. Applicants should
state age and experience, and give references as to character,
&c.—Address, Alpha, Chemical Trade Journal Office,
Manchester.

WANTED, Situation as WORKS
CHEMIST, by a young man who has passed
Honours Pract. Chem., Advanced Pract. and Theor.
Metallurgy; and also had 6½ years experience in laboratory
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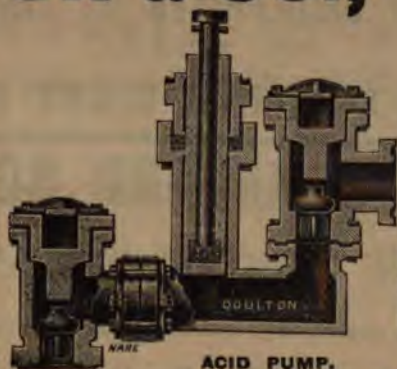
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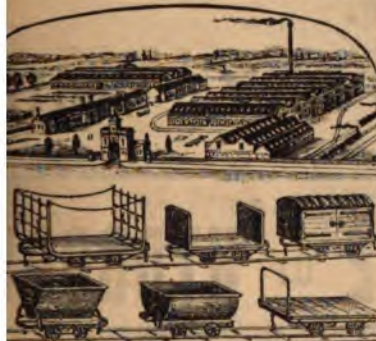
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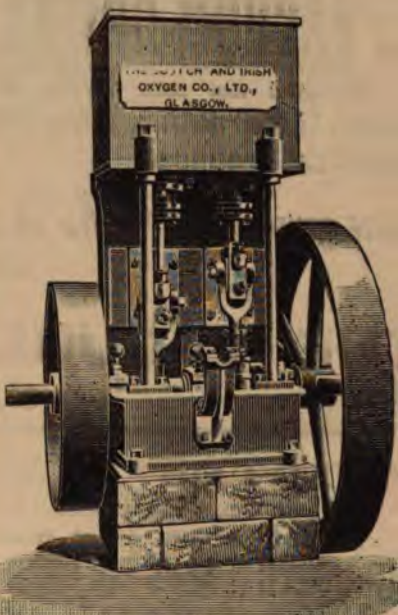
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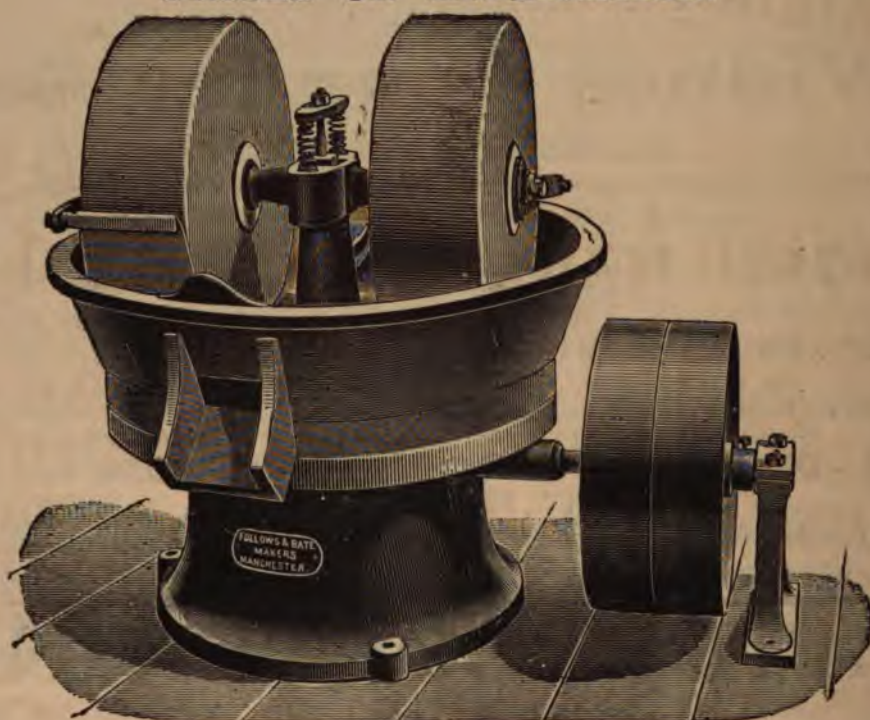
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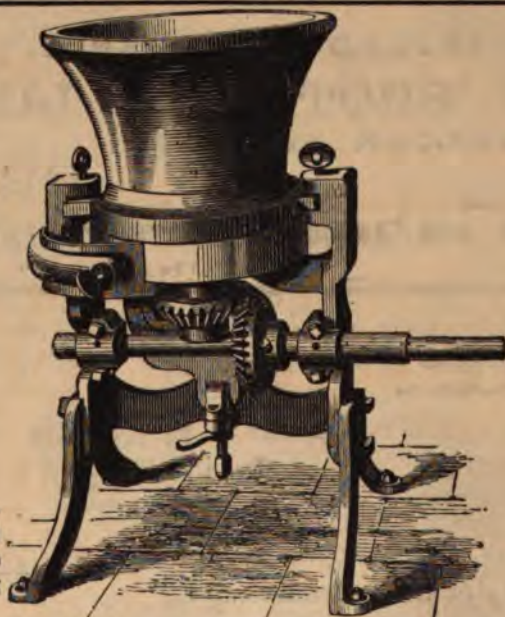
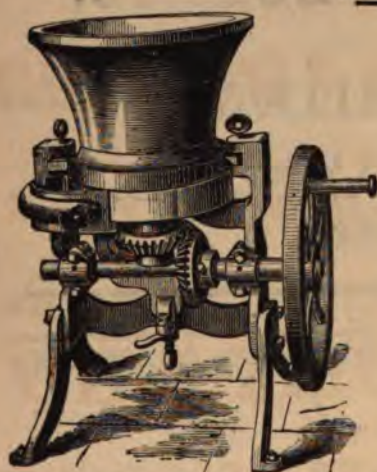
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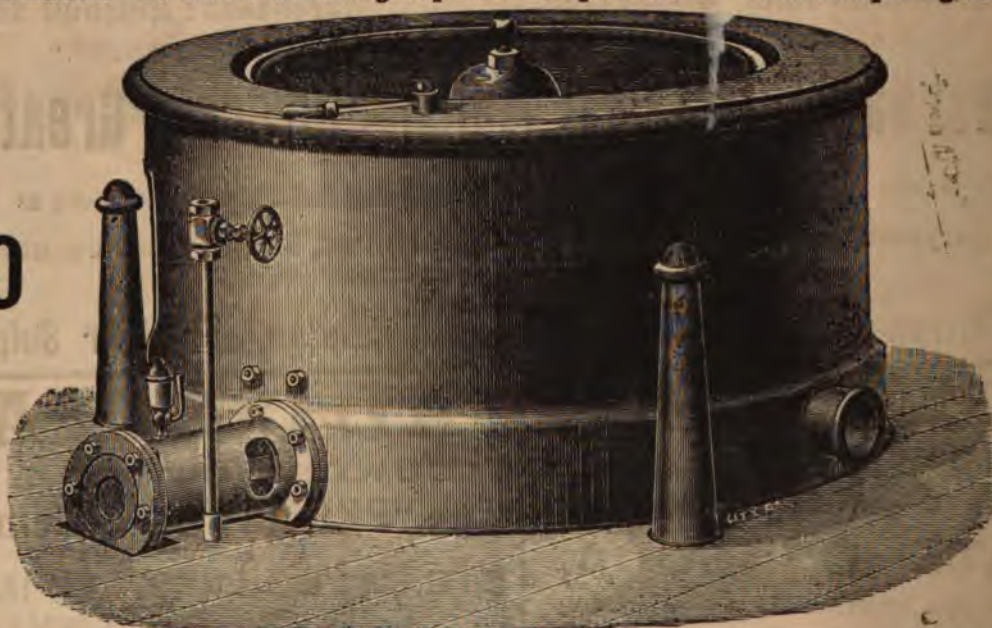
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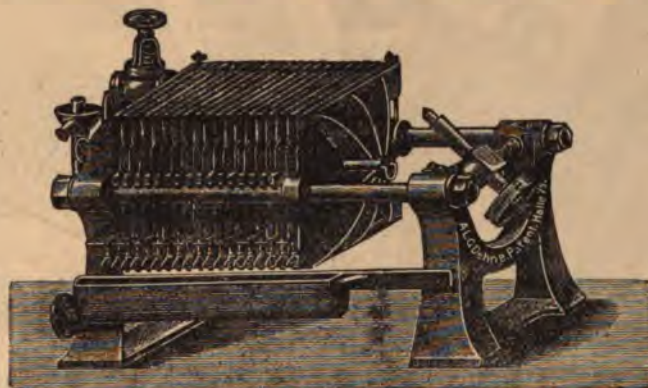
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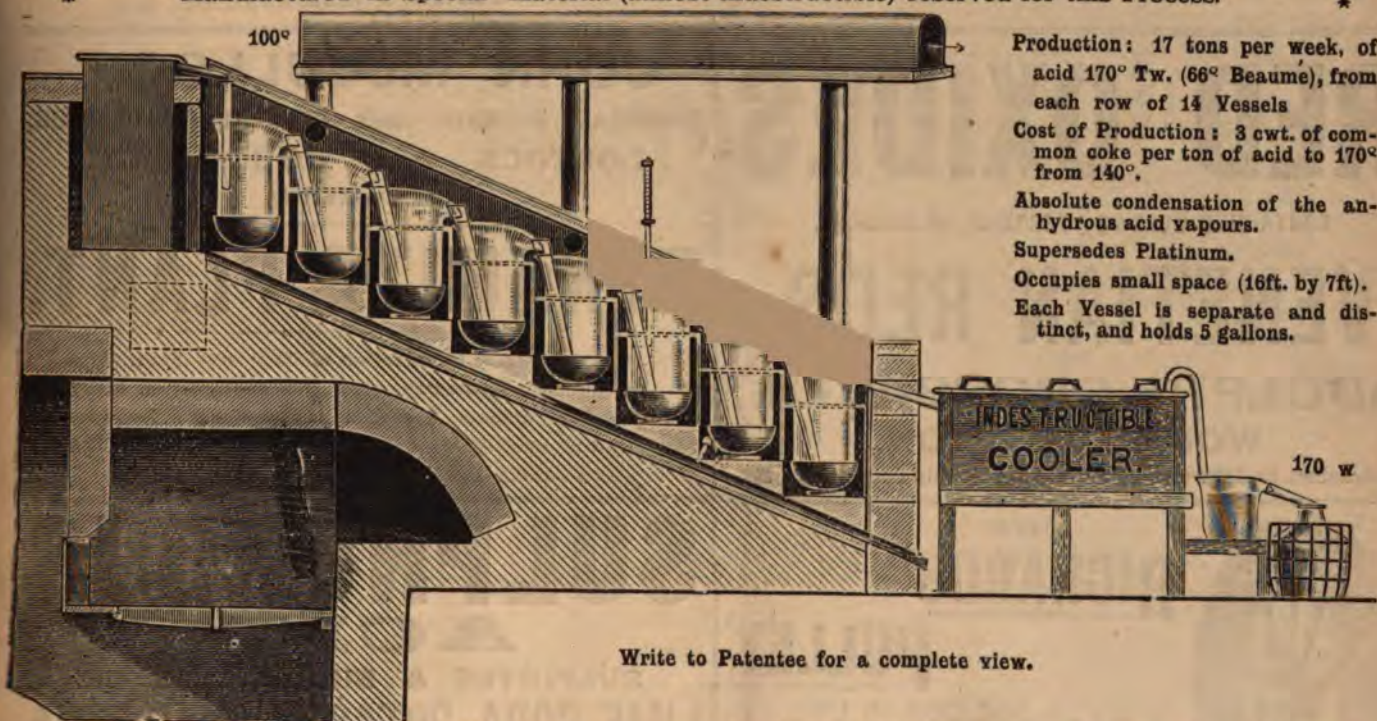
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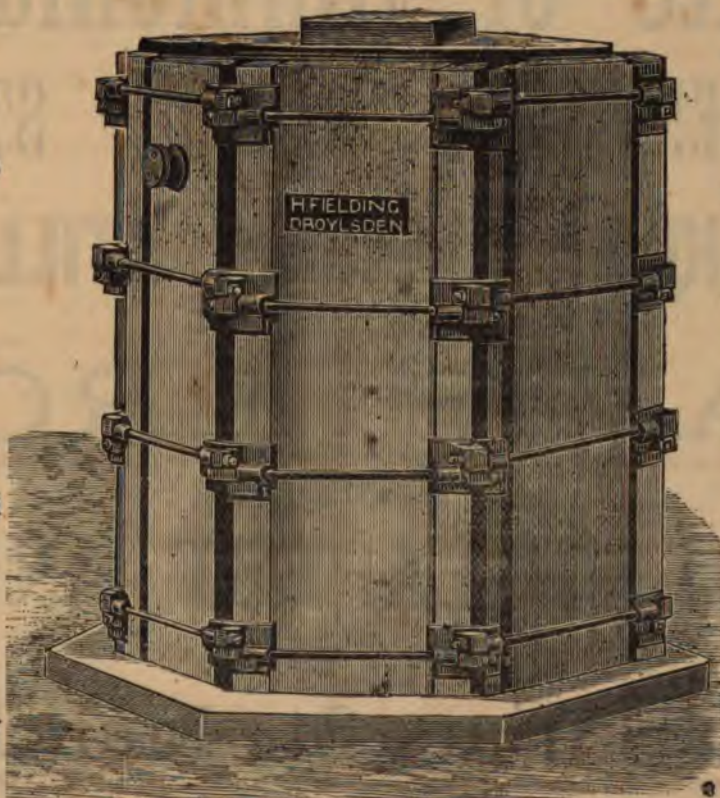
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